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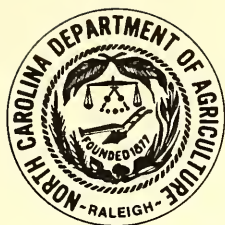
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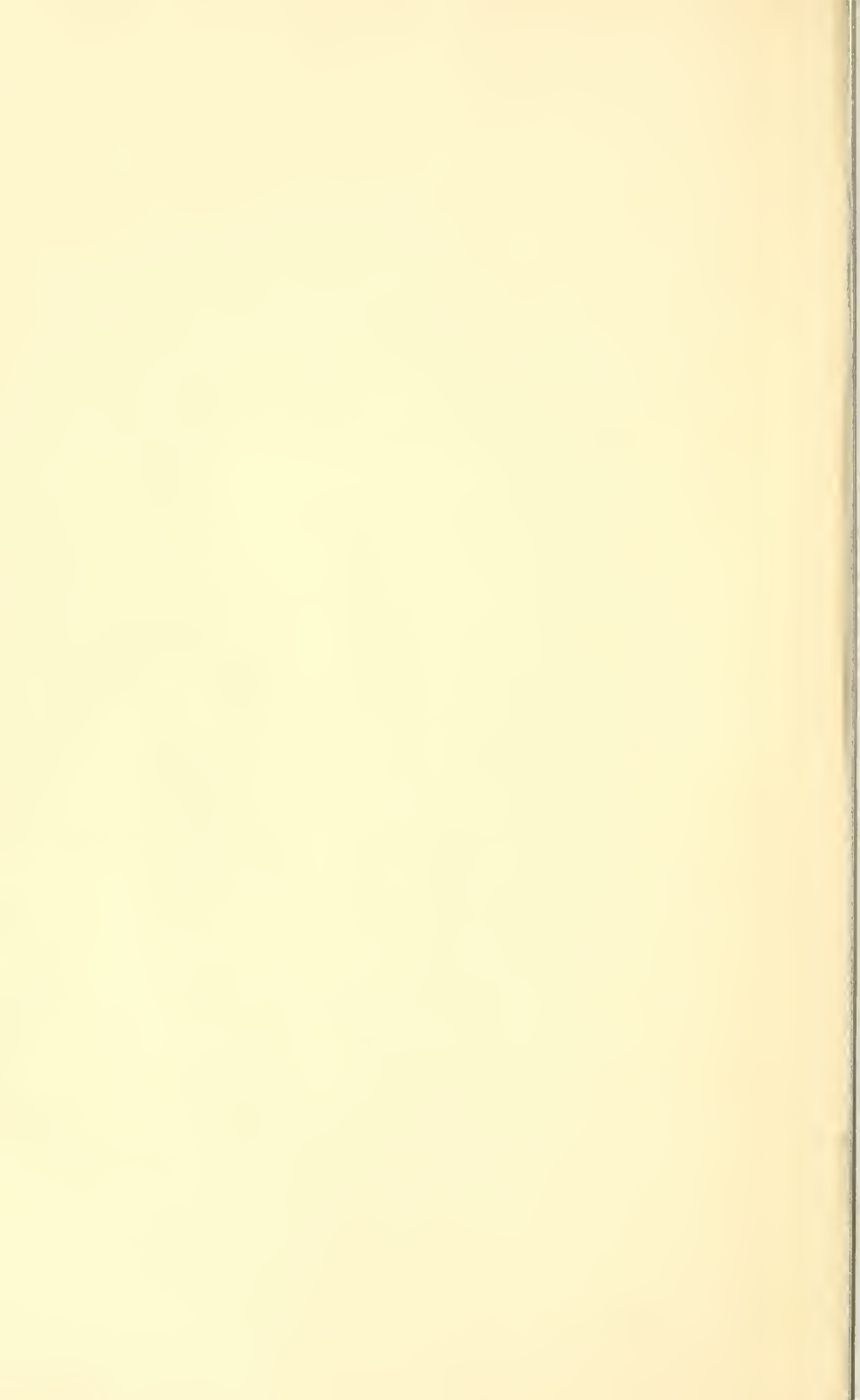


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*biennial report
north carolina
department of agriculture
1968-1970*





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north carolina
department of agriculture
1968-1970*

james a. graham, commissioner
john l. reitzel, assistant
f. carlyle teague, editor

raleigh, n. c.



STATE BOARD OF AGRICULTURE

June 30, 1970

JAMES A. GRAHAM, *Commissioner*
Ex-Officio Chairman



J. Atwell Alexander
Stony Point



James L. Sutherland
Laurinburg



Fred N. Colvard
Jefferson



Guy E. Fisher
Pendleton



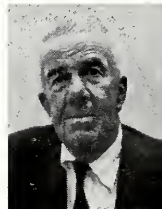
Claude T. Hall
Roxboro



George P. Kittrell
Corapeake



Charles F. Phillips
Thomasville



J. Hawley Poole
West End



Henry Gray Shelton
Speed



David Townsend, Jr.
Rowland

Others who served on the Board during a part of this bien-
nium were:

RICHARD N. BARBER, JR. Waynesville

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JAMES A. GRAHAM

Commissioner of Agriculture



JOHN L. REITZEL

Assistant Commissioner of Agriculture

PERSONNEL

of the

STATE DEPARTMENT OF AGRICULTURE

June 30, 1970

JAMES A. GRAHAM, *Commissioner*

GENERAL ADMINISTRATION

ADMINISTRATION

JOHN L. REITZEL	<i>Assistant Commissioner</i>
ELIZABETH B. BAREFOOT	<i>Stenographer III</i>
HAZEL L. HORNER	<i>Stenographer III</i>
VIRGINIA P. JOHNSON	<i>Administrative Secretary</i>
LINDA LEE	<i>Stenographer II</i>

ACCOUNTS

ALEX M. LEWIS	<i>Accountant IV</i>
JOSEPH C. ALLEN, JR.	<i>Accountant II</i>
NANCY A. BLINSON	<i>Stenographer III</i>
BEULAH J. BUNN	<i>Cashier I</i>
GAYLE F. HINES	<i>Accounting Clerk I</i>
MAVOREEN S. HINTON	<i>Typist II</i>
GERTRUD H. LARE	<i>Personnel Assistant</i>
MARY M. MACON	<i>Accounting Clerk I</i>
ELIZABETH W. MITCHNER	<i>Accounting Clerk III</i>
PHYLLIS P. O'NEAL	<i>Accounting Clerk II</i>
ROSEY E. PARKS	<i>Stenographer II</i>
PHILIP K. POWELL	<i>Personnel Officer I</i>
SARAH K. SANDERSON	<i>Accounting Clerk I</i>
PEGGY Y. SMITH	<i>Cashier II</i>
MARILYN C. WILLIAMS	<i>Stenographer II</i>
LUNELLE YEARGAN	<i>Accounting Clerk V</i>

PUBLICITY AND PUBLICATIONS

F. CARLYLE TEAGUE	<i>Information & Communication—Specialist III</i>
JAMES F. DEVINE	<i>Information & Communication—Specialist II</i>
BETTYE T. ROGERS	<i>Clerk II</i>
WILLIE L. SMITH	<i>Addressing Equipment Operator</i>
LOUISE T. WHITE	<i>Stenographer II</i>

CUSTODIAL

HENRY L. HALL	<i>Stock Clerk I</i>
ROBERT HARRIS	<i>Stock Clerk II</i>

INSPECTION AND REGULATION

INSPECTION

ARTHUR G. CAMPBELL, JR.	<i>Feed, Fertilizer & Pesticide Inspector</i>
EWELL E. EVANS	<i>Tax Auditor IV</i>
LOREN I. GILBERT	<i>Tax Auditor III</i>
LARRY M. JACKSON	<i>Feed, Fertilizer & Pesticide Inspector</i>
THOMAS M. PARKER	<i>Feed, Fertilizer & Pesticide Inspector</i>
JAMES R. STEVENS	<i>Feed, Fertilizer & Pesticide Inspection Supervisor</i>
CARL C. WILLIAMS	<i>Feed, Fertilizer & Pesticide Inspector</i>

ENTOMOLOGY

HUGH I. ALFORD, JR.	Entomologist II
DONALD G. ALLISON	Entomologist II
ALFRED S. ELDER	Entomologist II
JAMES F. GREENE	Entomologist III
THOMAS N. HUNT	Entomologist II
GEORGE A. MCCLENNY	Entomologist I
AILEEN G. MCCRAIN	Stenographer I
E. BLANEY PARKER III	Entomologist I
MAXINE M. SATTERFIELD	Stenographer II
JESSIE F. SESSIONS	Entomologist II
CONRAD T. WEATHERMAN	Pest Control Inspector (Plant)
D. L. WRAY	Entomologist III

WEIGHTS AND MEASURES

JOHN I. MOORE	Director, Weights and Measures, Gasoline and Oil Inspection
MARION L. KINLAW, JR.	Supervisor, Weights and Measures, Gasoline and Oil Inspection
CECIL C. ABERNATHY	Weights and Measures Inspector
JAMES G. BARNES	Trades Helper
JAMES E. BREEDLOVE	Trades Helper
WALTER R. BURNETTE	Weights and Measures Inspector
THOMAS W. CLONINGER	Weights and Measures Inspector
SUE L. FRY	Stenographer II
JAMES T. GURGANUS	Trades Helper
GRADY F. HALL	Weights and Measures Inspector
LESTER B. HARDIN	Weights and Measures Inspector
ALAN R. MOORE	Trades Helper
DONALD L. NESBITT	Weights and Measures Inspector
DIANNE P. NICHOLS	Stenographer II
RANDOLPH F. PEAKS	Weights and Measures Inspector
DONNIE G. PERRY	Weights and Measures Inspector
WILLIAM H. PERRY	Liquid Fertilizer Specialist
NED A. POWELL	Weights and Measures Inspector
CLYDE W. REEVES	Weights and Measures Inspector
THOMAS W. SCOTT	Weights and Measures Inspector
WILLIAM D. TAYLOR	Weights and Measures Inspector
JAMES P. WHITFIELD, SR.	Weights and Measures Inspector

MEAT AND POULTRY INSPECTION

ROBERT R. MILLER	Meat & Poultry Inspection Supervisor
HILTON V. ANDERSON	Meat & Poultry Inspector I
EDWARD M. ATHAY	Meat & Poultry Inspector I
EDWARD D. BAILEY	Meat & Poultry Inspector I
STOKLEY E. BAILEY	Meat & Poultry Inspector I
JOHN C. BAREFOOT	Meat & Poultry Inspector I
NINA L. BARHAM	Clerk II
CLARENCE B. BARKER	Meat & Poultry Inspector I
CARLTON R. BARNES	Meat & Poultry Inspector I
PAUL R. BARNHARDT	Meat & Poultry Inspector I
JULIAN S. BARNHILL	Meat & Poultry Inspector I
WALTER V. BATCHELOR	Meat & Poultry Inspector I
JULIAN C. BEALE	Meat & Poultry Inspector I
WADE W. BEASLEY	Meat & Poultry Inspector I
JAMES A. BELL	Veterinarian II
CLAUDE W. BENTLEY	Meat & Poultry Inspector I
PHILLIP R. BILLINGS	Meat & Poultry Inspector I
CLIFFORD BISHOP	Meat & Poultry Inspector I

TRAVIS B. BOWICK	<i>Meat & Poultry Inspector I</i>
VAN L. BOWMAN	<i>Meat & Poultry Inspector I</i>
ROBERT B. BOYD	<i>Meat & Poultry Inspector I</i>
WOLF F. BRANGS	<i>Meat & Poultry Inspector I</i>
WILLIAM C. BRASWELL	<i>Meat & Poultry Inspector I</i>
JASPER F. BRISSON, JR.	<i>Meat & Poultry Inspector I</i>
WILEY G. BROUGHTON	<i>Meat & Poultry Inspector I</i>
ORVILLE W. BROWN	<i>Meat & Poultry Inspector I</i>
ALDEN E. BRYSON	<i>Meat & Poultry Inspector I</i>
ALVIN G. BUCHANAN	<i>Meat & Poultry Inspector I</i>
WILLIAM C. BUCHANAN	<i>Meat & Poultry Inspector II</i>
FLOYD F. BUNN	<i>Meat & Poultry Inspector I</i>
GEORGE C. BUTLER	<i>Meat & Poultry Inspector I</i>
WALLACE C. BYRUM	<i>Meat & Poultry Inspector I</i>
HUGH B. CAMPBELL	<i>Veterinarian I</i>
SYLVESTER H. CLAYTON	<i>Meat & Poultry Inspector I</i>
ALGIE D. COBB	<i>Meat & Poultry Inspector I</i>
SHERMAN M. CRAWFORD, JR.	<i>Meat & Poultry Inspector I</i>
CHARLES M. CREDELE	<i>Meat & Poultry Inspector I</i>
JAMES E. CREEL	<i>Meat & Poultry Inspector I</i>
LOLA I. CURTIS	<i>Meat & Poultry Inspector I</i>
LEWIS J. DEMARCUS	<i>Meat & Poultry Inspector I</i>
CECIL E. EDWARDS	<i>Meat & Poultry Inspector I</i>
WAITUS H. EDWARDS	<i>Meat & Poultry Inspector I</i>
WILLIAM D. ESTEP	<i>Meat & Poultry Inspector I</i>
RUE A. EUBANKS, JR.	<i>Meat & Poultry Inspector II</i>
JAMES L. EZZELL	<i>Meat & Poultry Inspector I</i>
WILLIAM D. FAGGART	<i>Meat & Poultry Inspector I</i>
LOUIS Z. FELTON	<i>Meat & Poultry Inspector I</i>
LASZLO FERENCZ	<i>Meat & Poultry Inspector I</i>
AMBY C. FOOTE	<i>Meat & Poultry Inspector I</i>
JOHN F. FORD	<i>Meat & Poultry Inspector I</i>
ROBERT L. FOSTER	<i>Meat & Poultry Inspector II</i>
WILLIAM K. FRY	<i>Meat & Poultry Inspector I</i>
JARVIS W. GAY	<i>Meat & Poultry Inspector I</i>
CLIFFORD W. GOODWIN	<i>Meat & Poultry Inspector I</i>
MAE T. GOWER	<i>Meat & Poultry Inspector I</i>
HEINZ GUTTENBERGER	<i>Meat & Poultry Inspector I</i>
HENRY L. HALL	<i>Meat & Poultry Inspector I</i>
FELIX HARDIN	<i>Meat & Poultry Inspector I</i>
CLAUDE D. HAYES	<i>Meat & Poultry Inspector I</i>
HUBERT L. HELMS	<i>Meat & Poultry Inspector I</i>
HENRY H. HERMAN	<i>Meat & Poultry Inspector I</i>
WILLIE J. HICKS	<i>Meat & Poultry Inspector I</i>
JAMES F. HOLCOMB	<i>Meat & Poultry Inspector II</i>
JAMES B. HUGHES	<i>Meat & Poultry Inspector I</i>
CONLEY G. ISENBERG	<i>Veterinarian I</i>
DALLIE B. JACKSON	<i>Meat & Poultry Inspector I</i>
EUGENE R. JACKSON	<i>Meat & Poultry Inspector I</i>
JAMES M. JACKSON, JR.	<i>Veterinarian I</i>
JAMES T. JACKSON	<i>Meat & Poultry Inspector I</i>
JAMES E. JOHNSON	<i>Meat & Poultry Inspector II</i>
CHARLES E. JONES	<i>Meat & Poultry Inspector I</i>
CORNELIUS W. JONKHIER	<i>Meat & Poultry Inspector I</i>
NORA A. JORDAN	<i>Meat & Poultry Inspector I</i>
ARTHUR B. KAUFMAN	<i>Meat & Poultry Inspector I</i>
ROBERT M. KELLEY	<i>Meat & Poultry Inspector I</i>
GEORGE M. KERR	<i>Veterinarian I</i>
FLORENCE S. LAMPHIER	<i>Typist II</i>
FELTON D. LANDING	<i>Meat & Poultry Inspector I</i>
WILLIAM P. LASSITER	<i>Meat & Poultry Inspector I</i>

THEODORE LAWSON	<i>Meat & Poultry Inspector I</i>
JAMES R. LEE	<i>Meat & Poultry Inspector I</i>
ALBERT D. LILES	<i>Meat & Poultry Inspector I</i>
JAMES C. LONG, JR.	<i>Meat & Poultry Inspector I</i>
CHARLES V. LYDAY	<i>Veterinarian I</i>
JOSEPH F. MCCAIN	<i>Meat & Poultry Inspector I</i>
WOODROW E. MCGIMSEY ..	<i>Meat & Poultry Inspector II</i>
MARGARETE E. MCINTYRE ..	<i>Meat & Poultry Inspector I</i>
EDMOND G. MASSAD	<i>Meat & Poultry Inspector I</i>
WILLIAM C. MEDLIN	<i>Meat & Poultry Inspector I</i>
MEARL C. METCALF	<i>Meat & Poultry Inspector I</i>
CHARLES J. MILLER	<i>Meat & Poultry Inspector I</i>
CHARLES M. NICHOLS	<i>Meat & Poultry Inspector I</i>
CLARE W. NIELSON	<i>Meat & Poultry Inspector I</i>
JAMES P. OLLIS	<i>Meat & Poultry Inspector I</i>
CHARLES R. OXFORD	<i>Meat & Poultry Inspector I</i>
WILLIAM E. PALICH	<i>Veterinarian I</i>
GLENN O. PARK	<i>Meat & Poultry Inspector I</i>
JUNIOR E. PARKER	<i>Meat & Poultry Inspector I</i>
CHARLES M. PARRISH	<i>Meat & Poultry Inspector I</i>
FRED R. PARRISH	<i>Meat & Poultry Inspector I</i>
DALLAS I. PENNY	<i>Meat & Poultry Inspector I</i>
LAYTON W. PERRY	<i>Meat & Poultry Inspector I</i>
WADE H. PHELPS	<i>Meat & Poultry Inspector I</i>
OPHELIA PICKETT	<i>Meat & Poultry Inspector I</i>
RAM D. PRASED	<i>Veterinarian I</i>
ALBERT R. PRICE	<i>Meat & Poultry Inspector I</i>
JAMES R. RADFORD	<i>Meat & Poultry Inspector II</i>
JOSEPH V. RANDOLPH	<i>Meat & Poultry Inspector I</i>
JERRY P. RAY	<i>Meat & Poultry Inspector I</i>
SANDRA C. RICHARDSON	<i>Stenographer II</i>
HARVEY C. ROPER	<i>Meat & Poultry Inspector I</i>
CLARENCE E. ROSE	<i>Meat & Poultry Inspector I</i>
DIXIE B. RUSSELL	<i>Meat & Poultry Inspector I</i>
KERMIT E. SANDERFORD ..	<i>Meat & Poultry Inspector I</i>
WALTER N. SEAY	<i>Meat & Poultry Inspector I</i>
RAYMOND L. SHIELDS	<i>Meat & Poultry Inspector I</i>
ROXIE R. SILER	<i>Meat & Poultry Inspector II</i>
THOMAS L. SINK	<i>Meat & Poultry Inspector I</i>
HENRY M. SLOOP	<i>Meat & Poultry Inspector I</i>
ROBERT G. SMITHWICK	<i>Meat & Poultry Inspector I</i>
RICHARD W. SPIVEY, SR.	<i>Meat & Poultry Inspector I</i>
CHARLES L. STATON, JR.	<i>Meat & Poultry Inspector I</i>
LONNIE C. STROUD	<i>Meat & Poultry Inspector I</i>
WILLIAM G. SULLIVAN	<i>Veterinarian I</i>
TOM THAXTON	<i>Veterinarian I</i>
JAMES M. THOMPSON	<i>Meat & Poultry Inspector I</i>
JAMES W. TILLMAN	<i>Meat & Poultry Inspector I</i>
PEGGY R. UPCHURCH	<i>Stenographer III</i>
CLEVELAND O. WADE	<i>Meat & Poultry Inspector I</i>
GILDA F. WADE	<i>Meat & Poultry Inspector I</i>
DONNIE R. WALL	<i>Meat & Poultry Inspector I</i>
HAROLD L. WARLICK	<i>Meat & Poultry Inspector I</i>
ZENO H. WEAVER	<i>Meat & Poultry Inspector I</i>
REDDIN WEBB	<i>Meat & Poultry Inspector I</i>
JAMES C. WHEELER	<i>Meat & Poultry Inspector I</i>
JAMES C. WHITE	<i>Meat & Poultry Inspector I</i>
WILLIAM H. WHITE	<i>Meat & Poultry Inspector I</i>
LEWIS L. WISEMAN	<i>Meat & Poultry Inspector II</i>
LABIN T. WOODLIEF	<i>Meat & Poultry Inspector I</i>
RICHARD C. YARBOROUGH ..	<i>Meat & Poultry Inspector II</i>

EGG INSPECTION

BOBBY G. AUSTELL	<i>Marketing Specialist I</i>
GUY A. CUTLER	<i>Marketing Specialist III</i>
GEORGE E. INGRAM	<i>Marketing Specialist I</i>
WILSON T. LEGGETT	<i>Marketing Specialist I</i>
WILLIAM H. McCULLEN	<i>Marketing Specialist I</i>
ARTHUR C. McCURRY	<i>Marketing Specialist I</i>
JOSEPHINE H. RUDDOCK	<i>Stenographer II</i>

MARKETS

CURTIS F. TARLETON	<i>Director of Agricultural Marketing</i>
EUGENE G. BONEY, JR.	<i>Marketing Specialist II</i>
WILBUR S. BRANNAN	<i>Marketing Specialist III</i>
RUBY P. BRITT	<i>Stenographer III</i>
JESSIE T. BUNN	<i>Marketing Specialist III</i>
CHARLES L. CAMPBELL, JR.	<i>Marketing Specialist IV</i>
JUDITH H. CARD	<i>Stenographer II</i>
EUGENE E. CARROLL, JR.	<i>Marketing Specialist III</i>
JOHN H. CYRUS	<i>Marketing Specialist IV</i>
LOUISE T. DUNN	<i>Stenographer III</i>
CHARLES D. EDWARDS	<i>Marketing Specialist III</i>
CHARLES B. ELKS	<i>Marketing Specialist IV</i>
BILLIE A. FULLER	<i>Stenographer III</i>
THOMAS E. GREEN, SR.	<i>Marketing Specialist III</i>
NORWOOD O. HARGROVE	<i>Marketing Specialist IV</i>
ELAINE J. HARVELL	<i>Marketing Specialist II</i>
GLEN C. HATCHER, SR.	<i>Marketing Specialist III</i>
ANN K. HICKS	<i>Stenographer III</i>
JAMES F. HOCKADAY, JR.	<i>Marketing Specialist IV</i>
SPURGEON V. HYDER	<i>Marketing Specialist III</i>
JULIUS P. JENNETTE	<i>Marketing Specialist IV</i>
WALLACE G. JOHNSON	<i>Marketing Specialist IV</i>
JEWELL M. KELLY	<i>Typist I</i>
HENRY S. KENNETT	<i>Marketing Specialist III</i>
ETHEL Y. KIKER	<i>Marketing Specialist III</i>
CHARLES B. KING, JR.	<i>Marketing Specialist III</i>
KATHERINE B. KOPPEN	<i>Administrative Secretary</i>
WILLIAM E. LANE	<i>Marketing Specialist IV</i>
BRYANT C. LANGSTON, JR.	<i>Marketing Specialist III</i>
OPAL M. LILES	<i>Laboratory Technician II</i>
GLEEN N. LILLY, JR.	<i>Marketing Specialist III</i>
STALEY S. LONG, JR.	<i>Marketing Specialist III</i>
HUGH B. MARTIN	<i>Marketing Specialist IV</i>
CHARLES I. MILLER, JR.	<i>Marketing Specialist III</i>
NEILL A. MORRISON, JR.	<i>Marketing Specialist IV</i>
HOBART W. MYRICK	<i>Marketing Specialist III</i>
CLAUDE L. NELSON	<i>Marketing Specialist II</i>
MARY L. NORMAN	<i>Stenographer II</i>
JOHN H. PARKER	<i>Marketing Specialist III</i>
ARVID T. PEAK	<i>Marketing Specialist III</i>
ANN W. PEARCE	<i>Stenographer II</i>
KATHY L. PHIPPS	<i>Stenographer II</i>
LOIS M. PLEASANTS	<i>Draftsman II</i>
PATRICIA L. POOLE	<i>Stenographer II</i>
H. D. QUESSENBERRY	<i>Marketing Specialist IV</i>
SAMUEL G. RAND	<i>Marketing Specialist III</i>
ELLIS B. SHANDS	<i>Marketing Specialist III</i>
KATHY D. STEPHENSON	<i>Stenographer II</i>
ELIZABETH L. TAYLOR	<i>Stenographer III</i>
LARRY E. TETTERTON	<i>Marketing Specialist IV</i>

CARL H. TOWER	<i>Marketing Specialist III</i>
EURIS R. VANDERFORD	<i>Marketing Specialist III</i>
DAVID S. WALKER	<i>Marketing Specialist III</i>
PAULINE M. WATKINS	<i>Typist II</i>
DANIEL E. WESTER	<i>Marketing Specialist III</i>
WILLIAM A. WILDER, JR.	<i>Marketing Specialist V</i>

ANALYTICAL & REGULATION

DAIRY

LEONARD F. BLANTON	<i>Dairy Services Director</i>
GARNIE E. ANDERSON	<i>Dairy Specialist II</i>
LAFAYETTE H. BOYKIN, JR.	<i>Dairy Specialist II</i>
PAULA A. COLEMAN	<i>Stenographer II</i>
CHARLES W. DUNN	<i>Laboratory Helper</i>
PAUL R. JORDAN, JR.	<i>Analytical Chemist II</i>
JOHN R. MCGLAMERY	<i>Dairy Specialist II</i>
W. L. MCLEOD	<i>Dairy Specialist III</i>
PHILIP O. NICHOLS	<i>Dairy Specialist II</i>
ROBERT G. PARRISH, SR.	<i>Dairy Specialist II</i>
JACK B. SAWYER, JR.	<i>Laboratory Technician III</i>
MARY R. SMITH	<i>Chemist I</i>
GRACE F. WATKINS	<i>Laboratory Technician III</i>
GILES M. WILLIAMS	<i>Dairy Specialist II</i>

SEED TESTING

GEORGE E. SPAIN	<i>Seed Testing Director</i>
WILLIAM W. ALLEN	<i>Seed Specialist II</i>
JAMES M. S. BLOCKER	<i>Seed Specialist II</i>
MAGDALENE G. BRUMMITT	<i>Seed Laboratory Supervisor</i>
PATSY M. BUIE	<i>Seed Analyst II</i>
ROBERT C. BURRIS	<i>Seed Specialist II</i>
HENRY M. CALLIS	<i>Seed Specialist II</i>
ELLEN C. DOWDY	<i>Stenographer II</i>
REBECCA C. FRAZIER	<i>Clerk II</i>
VIRGINIA B. GRIFFIN	<i>Seed Analyst II</i>
SAMIRA B. GUIRGUIS	<i>Seed Analyst I</i>
THEODORA W. KING	<i>Seed Analyst II</i>
FRED L. MCHAN	<i>Seed Specialist II</i>
MURPHY G. MCKENZIE, JR.	<i>Seed Specialist II</i>
JEWELL G. STALLINGS	<i>Seed Analyst II</i>
CORNELIA S. STRICKLAND	<i>Seed Analyst II</i>
VIRGINIA L. B. TEAL	<i>Seed Analyst II</i>
MILDRED W. THOMAS	<i>Seed Analyst II</i>
BILLIE D. WATSON	<i>Seed Analyst II</i>

ANALYTICAL

WILLIAM Y. COBB	<i>State Chemist</i>
THERON ALEXANDER	<i>Chemical Analyst II</i>
HENRY O. AUSTIN	<i>Feed, Fertilizer & Pesticide Inspector</i>
ARMIDA M. AVERY	<i>Chemical Analyst I</i>
HENRY W. BARNES, JR.	<i>Analytical Chemist I</i>
ELIZABETH F. BARTHOLOMEW	<i>Analytical Chemist I</i>
STANLEY E. BERKSHIRE	<i>Food, Drug & Cosmetic Inspector</i>
ROSALEEN S. BRADY	<i>Typist II</i>
LINDA T. BROWN	<i>Stenographer II</i>
DAVID E. BUFFALO	<i>Analytical Chemist I</i>
WILLIAM B. BUFFALO	<i>Analytical Chemist II</i>
THOMAS E. CARRIKER, JR.	<i>Food, Drug & Cosmetic Inspector</i>
JAMES L. CARROLL	<i>Chemical Analyst I</i>
MARGARET B. CARTER	<i>Analytical Chemist I</i>
JAMES A. CHAPMAN	<i>Laboratory Helper</i>
HARVEY M. CLAYTON	<i>Analytical Chemist Trainee</i>

EVELYN S. CONYERS	Chemical Analyst I
DOROTHY M. DAVIS	Stenographer III
RALPH L. DENNING	Analytical Chemist Trainee
CHARLES N. DOWSETT	Chemical Analyst I
EVELYN A. FREEMAN	Stenographer II
ROBERT L. FREEMAN	Food, Drug & Cosmetic Inspector
CHARLES H. GODWIN, JR.	Food, Drug & Cosmetic Inspector
PEARL G. GRAY	Stenographer III
BETTY H. GRIFFIN	Stenographer II
WILLIAM M. HARRIS	Analytical Chemist I
CHARLIE E. HINTON, JR.	Laboratory Helper
SAMUEL H. HINTON	Laboratory Helper
LAFLLOYD H. HOBBS, JR.	Chemical Analyst I
JESSE G. JERNIGAN	Analytical Chemist I
VERA C. JOHNSON	Chemical Analyst II
CHENG C. LIN	Chemical Analyst I
DWIGHT M. LOWIE, JR.	Analytical Chemical Trainee
THOMAS W. LUCAS	Laboratory Helper
W. P. MATTHEWS	Analytical Chemist I
KARIM S. MISHRIKY	Chemical Analyst I
VICKIE E. MOONEYHAM	Typist III
FRED P. NOOE	Food, Drug & Cosmetic Inspector
JOHNNY W. PEELE	Chemical Analyst I
H. F. PICKERING	Analytical Chemist I
JAMES R. POLK	Chemical Analyst I
CLYDE W. ROBERTS	Food, Drug & Cosmetic Inspector
BETTY L. SMITH	Typist III
JOHN L. SMITH, JR.	Analytical Chemist Trainee
WILBUR G. SPRINKLE	Analytical Chemist Trainee
WILLIAM SYLVER, JR.	Laboratory Helper
ROBERT T. TEAGUE, JR.	Analytical Chemist III
RONALD G. UNDERWOOD, JR.	Chemical Analyst I
WILLIAM T. VICK	Analytical Chemist I
ALLIE L. WILLIAMS	Chemical Analyst I
GEORGE R. WINSTEAD, III	Analytical Chemist II

SOIL TESTING

DONALD W. EADDY	Soil Testing Director
AMORET D. BITTLE	Agriculture Chemist
SHIRLEY S. BOWLING	Agriculture Chemist
MURPHY H. CAIN	Laboratory Helper
CAROLYN O. COPELAND	Analytical Chemist I
JOSEPH E. DOUGLAS	Laboratory Helper
JOANN E. EIDENBERGER	Key Punch Operator II
ALBERT L. HATFIELD	Agronomist II
AUDREY H. HAYES	Clerk II
CAROLYN C. HOLT	Stenographer III
VIOLET R. HUMPHRIES	Laboratory Technician II
SARAH P. JOHNSON	Agriculture Chemist
RUTH B. LEWIS	Agriculture Chemist
JUANITA U. MATTHEWS	Agriculture Chemist
PEGGY J. SWINSON	Stenographer II
OLIVIA H. WATKINS	Key Punch Operator II
PAULINE N. WILDER	Laboratory Technician II
SUE P. WILLIAMS	Agriculture Chemist

CROP STATISTICS

RAYMOND R. ALFORD, JR.	Office Machine Operator, Supervisor GS IV
MARY S. ALLEN	Statistical Analyst II

BETTY P. BAKER	Statistical Aide
PHYLLIS L. BOYKIN	Key Punch Operator II
GEORGIE T. BYNUM	Statistical Aide
CAROLYN R. COX	Stenographer II
CHARLIE H. CROSS, JR.	Duplicating Equipment Operator II
MARTHA F. EARLY	Statistical Analyst III
EVELYN L. FINCH	Vari-Type Operator III
KATHRYN H. HICKS	Key Punch Operator II
WILLIAM C. HINSON, JR.	Agriculture Statistician
JEWELL B. HUSSEY	Statistical Analyst I
IDA L. KING	Statistical Aide
MINNIE H. LANGLEY	Vari-Type Operator III
WAYNE S. LEARY	Farm Census Supervisor
FLORINE C. LEONARD	Statistical Aide
CARRIE MAE MANN	Statistical Aide
JULIAN K. MATTHEWS	Duplicating Equipment Operator II
MARY D. MATTHEWS	Statistical Analyst I
CARL A. OUZTS	Statistician (Agriculture) GS 12
ANNE L. RIKER	Key Punch Operator II
NATILIE R. SHEARIN	Statistical Aide

VETERINARY

THOMAS F. ZWEIGART, JR.	State Veterinarian
JOSEPHINE A. ALLEN	Administrative Secretary
GREY P. BAKER	Medical Laboratory Technician II
JOHN D. BAKER	Veterinarian I
JOHNNIE W. BARNES	Laboratory Helper
MARVIN A. BATCHELOR	Livestock Inspector
GARY C. BAUCOM	Poultry Specialist I
GUY R. BERETICH	Veterinarian I
RENA S. BOGLE	Stenographer II
CHARLES R. BORDER	Veterinarian I
LOREN BUCHANAN, JR.	Veterinarian, I
TRUDY S. BURNETTE	Medical Laboratory Technician I
ALLIE W. CARTER	Livestock Inspector
JULIUS B. CASHION	Poultry Specialist I
JESSE J. CAUSBY	Poultry Specialist II
KENNETH G. CHURCH	Poultry Specialist I
JAMES H. CLEGG	Poultry Specialist I
WILLIAM W. CLEMENTS	Veterinarian I
ALTON L. CORBETT	Livestock Inspector
EUGENE C. COUCH	Livestock Inspector
NANCY F. COUEY	Stenographer II
THOMAS E. CRUMPLER	Livestock Inspector
LILLY F. DAUGHTRY	Stenographer II
CLYDE J. DAVES	Livestock Inspector
GUY E. DOWD	Poultry Specialist I
DEWEY M. EDWARDS	Livestock Inspector
L. J. FOURIE	Poultry Inspection Supervisor
JAMES A. FRAZIER	Poultry Specialist II
GEORGE D. FULLER	Livestock Inspector
WILLIAM B. GRIFFIN	Veterinarian I
JULIAN E. GUSTON	Poultry Specialist I
JESSE R. HALL	Livestock Inspector
MADGE L. HALL	Medical Laboratory Technician II
RALPH HAMILTON	Veterinarian I
GLENDA K. HELMS	Medical Laboratory Technician II
GEORGE HINTON	Clerk I
GEORGE L. HUNNICUTT	Veterinarian I
GENEVA C. HUNT	Stenographer III

ARTHUR E. JOHNSON	<i>Livestock Inspector</i>
EDWARD L. JOHNSON	<i>Laboratory Helper</i>
HUBERT F. JORDAN	<i>Laboratory Helper</i>
JAMES L. KEARNEY	<i>Laboratory Helper</i>
KENNETH G. KEENUM	<i>Veterinarian I</i>
JAMES D. KELLEY	<i>Poultry Specialist I</i>
IRENE K. KILPATRICK	<i>Medical Laboratory Technician II</i>
BETTY R. LILES	<i>Medical Laboratory Technician II</i>
EUNICE G. LIPHAM	<i>Medical Laboratory Technician II</i>
THOMAS B. LOVE	<i>Poultry Specialist I</i>
DOUGLAS H. MCFATTER	<i>Poultry Specialist I</i>
GERI C. MANGUM	<i>Medical Laboratory Technician I</i>
PAUL C. MARLEY	<i>Poultry Specialist I</i>
OREN D. MASSEY, JR.	<i>Poultry Specialist I</i>
CONNIE L. MATTHEWS	<i>Medical Laboratory Technician I</i>
GARY M. MEDLIN	<i>Poultry Specialist I</i>
JAMES R. MILLER	<i>Veterinarian II</i>
OSCAR L. MOORING	<i>Poultry Specialist I</i>
DAVID A. MUNRO	<i>Veterinarian I</i>
CORRINE K. MURRAY	<i>Medical Laboratory Technician I</i>
NADINE R. NESBIT	<i>Medical Laboratory Technician II</i>
DOROTHY C. PATE	<i>Medical Laboratory Technician II</i>
WALTER G. PEARSON	<i>Veterinarian I (In Veterinarian Specialist Position)</i>
PETER S. PENLAND	<i>Poultry Specialist I</i>
HERBERT P. PERRY	<i>Poultry Specialist I</i>
OLLIE C. PICKRAL	<i>Livestock Inspection Supervisor</i>
CLIFFORD W. PITTMEN	<i>Veterinarian I</i>
LA RUE T. POLLARD	<i>Medical Laboratory Technician III</i>
HUGO M. POWELL	<i>Veterinarian I</i>
OTHELL H. PRICE	<i>Stenographer II</i>
LOLA S. REINCKENS	<i>Stenographer II</i>
MARTIN A. ROSS	<i>Veterinary Pathologist</i>
NED M. ROSS	<i>Veterinarian I</i>
MARY K. RUPPE	<i>Medical Laboratory Technician II</i>
ROWLAND W. RUSHMORE	<i>Veterinarian I</i>
TERRELL B. RYAN	<i>Veterinary Laboratory Director</i>
PHIL R. SANDIDGE	<i>Poultry Specialist I</i>
JOSEPH A. SCHMITZ	<i>Veterinarian I</i>
GEORGE W. SIMPSON	<i>Poultry Specialist II</i>
CAROL V. SMITH	<i>Medical Laboratory Technician III</i>
DIXIE D. SOUTHARD	<i>Poultry Specialist I</i>
IDA C. STARLING	<i>Medical Laboratory Technician II</i>
JULIAN S. STARR, III	<i>Veterinarian I</i>
MARY G. VAN HORN	<i>Medical Laboratory Technician II</i>
KENNETH C. WILKINS	<i>Medical Laboratory Assistant</i>
LUCKY WILLIAMS	<i>Laboratory Helper</i>
THERON S. WILLIAMS	<i>Assistant State Veterinarian</i>
WILLIAM R. WILSON, JR.	<i>Veterinarian I</i>

RESEARCH STATIONS

CECIL D. THOMAS	<i>Agriculture Research Stations Director</i>
ELWOOD A. ALLEN	<i>Maintenance Mechanic II</i>
GRAHAM E. ALLEN	<i>Farm Hand</i>
JOSEPH H. ARRINGTON	<i>Farm Foreman II</i>
EDWARD R. ASKEW	<i>Agriculture Research Technician I</i>
EMMETT K. ATWOOD	<i>Farm Foreman II</i>
BILLY N. AYSUE	<i>Farm Superintendent II</i>
WARREN H. BAILEY	<i>Farm Superintendent III</i>
WALLACE R. BAKER, JR.	<i>Farm Superintendent II</i>
ROBERT K. BARKLEY	<i>Agriculture Research Assistant</i>

ELTON BAZEMORE	Farm Worker
LINWOOD BAZEMORE, JR.	Farm Worker
GEORGE D. BETTS	Farm Worker
PERCY L. BRASWELL	Farm Worker
GENE BRITT	Agriculture Research Technician I
WILLIAM K. BROCK	Agriculture Research Technician I
BURNEY C. BULLARD	Farm Hand
ALICE F. BURCHFIELD	Stenographer II
THEODORE R. BURLESON, JR.	Agriculture Research Technician II
JAMES A. CHESSON	Farm Hand
JAMES W. COMSTOCK	Farm Worker
GEORGE E. COWAN	Farm Worker
GWENDOLYN K. COX	Typist II
HARVEY R. CROUSE	Maintenance Mechanic I
RUFUS CURTIS	Livestock Man
BERNARD R. DANIEL	Maintenance Mechanic I
AVERY J. DAVIS, JR.	Farm Worker
JERRY P. DAVIS	Agriculture Research Assistant
WALLACE J. DICKENS	Farm Superintendent II
JAMES R. EDWARDS	Farm Superintendent III
ERNEST W. ENGLISH	Farm Foreman II
ROGER D. EVANS	Farm Worker
JAMES J. FLETCHER	Farm Worker
ROGER D. CARR	Farm Worker
JAMES W. GEORGE	Agriculture Research Assistant
EARNEST GORE	Farm Worker
BILLY J. GREENE	Farm Worker
GILBERT E. HALL, JR.	Farm Foreman II
THOMAS E. HARPER	Farm Worker
BERNICE H. HARRELL	Stenographer II
GARFIELD HARRIS	Farm Foreman II
HIRAM HAWKINS	Farm Hand
GLENN HAYNES	Farm Worker
ALICE J. HONEYCUTT	Stenographer II
MOSES J. HORNE	Farm Hand
HORACE G. HUDSON	General Utility Man
CRAWFORD L. HUNT	Farm Hand
LEROY JONES	Farm Hand
RICHARD O. JONES	Farm Worker
PATON H. KELLY	Administrative Officer II
MERLE R. KING	Agriculture Research Technician II
MOODY KNOGHT	Farm Worker
RUTH O. LANE	Typist II
JAMES E. LEE	Farm Worker
ANNE Y. LENTZ	Stenographer II
ROBERT A. LEWIS	Farm Foreman II
CHARLES H. LUTON	Farm Foreman II
CHARLES W. LYONS	Farm Hand
WILLIE L. McCADEN	Farm Hand
WILSON C. McCADEN	Farm Worker
HAYES L. McCLEURE	Farm Foreman II
WALKER W. McNEILL	Agriculture Research Technician II
CLYDE Z. McSWAIN	Farm Superintendent III
GEORGE D. MOODY	Farm Worker
JESSIE W. MORRIS	Farm Worker
LONNIE MOSBY, JR.	Agriculture Research Assistant
LENA M. NEAVES	Stenographer II
MELVIN L. OLIVER	Farm Worker
THOMAS E. PERRY	Farm Foreman II
THURMAN R. PIERCE	Farm Worker
BEN D. RACKLEY	Farm Worker

CHARLES G. REAGAN	Farm Worker
OLIVER RICE	Livestock Man
LEROIY RICH	Farm Worker
ALVIN W. RIVENBARK	Livestock Man (Dairyman)
JOHN D. ROTEN	Agriculture Research Assistant
CLAUDE S. ROUPE	Farm Worker
JOHN SASSER, JR.	Farm Foreman II
GEORGE SEVERT	Farm Worker
CHARLES C. SHEPHERD	Farm Worker
J. D. SHEPPARD	Farm Worker
JULIA L. SKINNER	Typist II
HOMER G. SMITH	Livestock Man
JOHN W. SMITH	Farm Superintendent II
JEAN W. SPRUILL	Typist II
THILBERT A. SUGGS	Agriculture Research Technician I
JESSE W. SUMNER	Farm Superintendent II
HENRY M. TALLARDY	Clerk II
DAN L. TAYLOR	Agriculture Research Technician I
JAMES C. TAYLOR	Farm Foreman II
JOHN H. THOMAS	Maintenance Mechanic I
LEVY C. TODD	Farm Worker
DANA F. TUGMAN	Farm Superintendent II
LLOYD WATSON	Farm Worker
CHARLES E. WEBB	Farm Worker
WALLACE M. WEST	Farm Worker
RANDOLPH WHITLEY	Agriculture Research Technician I
ELIZABETH H. WILLIAMS	Stenographer II
JAMES H. WILLIAMS	Farm Hand
JOHN A. WYATT	Farm Hand
THOMAS R. YARSKI	Livestock Man

MUSEUM OF NATURAL HISTORY

WILLIAM L. HAMNETT	Museum of Natural History Director
LUDIE V. ASHE	Maid
ROBERT M. DOWNS	Natural Science Museum Curator II
HEZEKIAH GOODSON	Janitor
GRACE R. JOHN	Stenographer II
RENALDO G. KUHLE	Natural Science Museum Curator I (In Curator II Position)
CHARLES H. LEIBRANDT	Taxidermist
WILLIAM M. PALMER	Natural Science Museum Curator II
EXCELL J. PHARR	Messenger
SARA D. PRINCE	Clerk II
BETTY R. SMITH	Natural Science Museum Curator I
EUGENE T. UPCHURCH	Natural Science Museum Curator II
JAMES F. VESTER	Cabinetmaker
MARY M. WEATHERS	Stenographer I

FOOD DISTRIBUTION

JAY P. DAVIS, JR.	Commodity Distribution Director
SAMUEL T. AVERA	Commodity Distribution Representative
RAYMOND M. CHADWICK	Stock Clerk II
RALEIGH T. DANIEL	Commodity Distribution Assistant Director
ALISON A. DICKERSON	Accounting Clerk II
GLADYS R. DUDLEY	Stenographer III
ROBERT B. DUNN	Administrative Officer I
ROBERT B. GODWIN	Commodity Distribution Representative
DAVID S. GRIFFIN	Commodity Distribution Representative
DOROTHY C. HILL	Accounting Clerk II
CATHERINE S. HOLDEN	Typist II

DON M. HONEYCUTT	Stock Clerk II
JAMES M. HUNTER, JR.	Warehouse Manager I
BARBARA F. KING	Stenographer II
CECIL L. MORRIS	Warehouse Manager I
JERRY M. NARRON	Commodity Distribution Representative
NELLIE M. SANDERS	Accounting Clerk II
WALTER M. SAWYER	Administrative Officer I
ROBERT P. SELMAN	Stock Clerk II
BEN L. STANFIEL	Warehouse Manager I

STRUCTURAL PEST CONTROL

RUDOLPH E. HOWELL	Pest Control Director
TYRONE S. BULLARD	Pest Control Inspector
NORMAN R. HOWELL	Pest Control Inspector Supervisor
JAMES T. PERRY	Pest Control Inspector
JIMMY D. RAYNOR	Pest Control Inspector
BILLY R. WEST	Pest Control Inspector
ELSIE O. YOUNG	Stenographer II

GASOLINE AND OIL INSPECTION

JOHN I. MOORE	Director, Weights & Measures, Gasolina & Oil Inspection
CAREY M. ASHLEY	Motor Fuels Analyst
CAROLYN F. BUNN	Stenographer II
MARSHALL D. CARPENTER	Gasonila & Oil Inspector
ROBERT F. COMER	Liquid Gas Inspector
JACK C. CONNOLLY, II	Motor Fuels Analyst
MILTON C. CONVERSE	Liquid Gas Engineer
MARSHALL D. CON	Motor Fuels Analyst
JOSEPH DENTON	Gasolina & Old Inspector
PAUL H. ETHERIDGE, JR.	Motor Fuels Analyst
ALICEGRAE F. FERRELL	Accounting Clerk III
DEBRA K. FOLEY	Stenographer I
JEAN S. GARY	Motor Fuels Analyst
ROY B. HALLMAN	Gasonila & Oil Inspector
ELLIOTT HARRISON	Laboratory Helper
HUGH F. HAYES	Octane Rating Analyst
THOMAS R. HAYES	Gasoline & Oil Inspector
HUBERT J. HENSLEY	Weights & Measures Inspector
HORACE E. HERMAN	Liquified Gas Inspector
CONNIE B. HINES	Weights & Measures Inspector
ARTHUR B. HUTCHINS	Gasolina & Oil Inspector
HERMAN L. JONES	Gasoline & Oil Inspector
HAROLD U. KINDER	Gasoline & Oil Inspector
CURTIS R. LINDSAY	Gasoline & Oil Inspector
T. PAUL LOPP	Gasoline & Oil Inspector
ROBERT H. MCARVER	Gasoline & Oil Inspector
JOHN L. McLAUGHLIN	Motor Fuels Analyst
ROBERT E. MULLEN	Motor Fuels Analyst
JOHNNY W. NELSON	Motor Fuels Analyst
THOMAS F. ODER	Gasoline & Oil Inspector
DEAN E. PADGETT	Weights & Measures Inspector
DOUGLAS M. PAIL	Gasoline & Oil Inspector
MARIE W. PERRY	Motor Fuels Analyst
EDSEL H. PRIVETTE	Weights & Measures Inspector
PARLEY B. RASMUSSEN, JR.	Motor Fuels Analyst
JAMES R. RIVERS	Gasoline & Oil Inspector
JOSEPH C. ROEBUCK	Gasoline & Oil Inspector
FRANK L. ROUSE	Weights & Measures Inspector
DAVID W. SANDERS	Gasoline & Oil Inspector

ADAM D. SCOTT	<i>Octane Rating Analyst</i>
H. L. SHANKLE	<i>Analytical Chemist II</i>
HARRY W. SHELTON	<i>Motor Fuels Analyst</i>
RAY D. SIGMON	<i>Gasoline & Oil Inspector</i>
CLARENCE D. SIMPSON	<i>Gasoline & Oil Inspector</i>
DAVID B. SPIVEY	<i>Weights & Measures Inspector</i>
ROBERT M. SMITH	<i>Gasoline & Oil Inspector</i>
ALTON P. STOCKS	<i>Liquified Gas Inspector</i>
EATON W. SUTTON	<i>Motor Fuels Analyst</i>
JOSEPH L. TAPP	<i>Gasoline & Oil Inspector</i>
RALPH G. THORNBURG	<i>Motor Fuels Analyst</i>
JAMES E. TURPIN	<i>Gasoline & Oil Inspector</i>
EARL E. VAUGHN	<i>Gasoline & Oil Inspector</i>
DVONNE D. WALKUP	<i>Stenographer II</i>
ROBERT G. WESCOTT	<i>Motor Fuels Analyst</i>
WORTH E. WILLIAMS	<i>Gasoline & Oil Inspector</i>
GORDEN S. YOUNG	<i>Weights & Measures Inspector</i>

STATE WAREHOUSE FUND

WILLIAM G. PARHAM, JR.	<i>Warehouse System Superintendent</i>
JUDY F. GAY	<i>Stenographer II</i>
FRANCES L. O'NEAL	<i>Stenographer III</i>

COOPERATIVE INSPECTION SERVICE

BOBBY G. BYRD	<i>Marketing Specialist I</i>
JAMES M. CLARK	<i>Marketing Specialist II</i>
LARRY S. DEAL	<i>Marketing Specialist III</i>
GROVER H. DEAN	<i>Marketing Specialist I</i>
VALLIE L. HOLDER	<i>Stenographer III</i>
KENNETH L. PERRY	<i>Marketing Specialist II</i>
HELEN J. PARRISH	<i>Accounting Clerk II</i>
ELDRIDGE C. PRICE	<i>Marketing Specialist IV</i>

CREDIT UNION SUPERVISION

W. V. DIDAWICK	<i>Credit Union Administrator</i>
STANLEY W. BROWN, JR.	<i>Fiscal Examiner II</i>
SHIRLEY T. COATS	<i>Stenographer II</i>
JOSEPH M. JONES	<i>Fiscal Examiner III</i>
CARL B. MARTIN	<i>Fiscal Examiner III</i>
WILLIAM B. STOVALL	<i>Fiscal Examiner II</i>
EDWIN C. SWARTZ	<i>Fiscal Examiner II</i>

OPERATION OF FARMERS MARKET

CHARLES G. MURRAY	<i>Manager Farmers Market</i>
CAROLE C. DAVENPORT	<i>Stenographer II</i>

BIENNIAL REPORT

OF THE

NORTH CAROLINA DEPARTMENT OF AGRICULTURE

By JAMES A. GRAHAM
Commissioner of Agriculture

The 1968-1970 biennium has continued to present to the Department new problems, new challenges, and new opportunities.

In the 1968 season the State's agriculture experienced one of the worst droughts in recent years. Hog cholera and the sweet potato weevil have presented intensive problems, but the Department met the challenge.

In the Department's consumer protection programs, we have been faced with new bans on certain pesticides, and cyclamates in foods and beverages and similar conditions requiring extensive work in developing and adopting regulations.

The many consumer protection programs which are carried on in the department have been continuing for years. However, during this biennium there has been increased demands on these particular services for two reasons. One is the sharply increased technologies and sciences involved in the production of most consumer products today. The other has been considerably more activity and agitation on the part of consumers, much of which is due to the fact that consumers in this state have not previously been organized and have not generally made themselves sufficiently aware of the service provided for them, although the information has been repeatedly publicized. Nevertheless, there are currently unmet needs, or only partially met needs, in this area of our work which must be emphasized in this report.

STATE BOARD OF AGRICULTURE

The Board of Agriculture is the regulatory and policy making body of the Department of Agriculture. Its membership currently, and by long tradition, represents the finest kind of intelligent agricultural leadership and dedicated public service.

The Board consists of 10 members appointed by the Governor for six-year terms of office. However, the law provides for staggered terms, so that not all expire at one time, and requires that the members shall be active farmers representing the major sections and types of agriculture in the state.

The multiplying problems of progress place commensurately heavier burdens upon this Board. Regulatory provisions on which they must pass increase in complexity and in number. The Board members are all busy farmers and businessmen, active in many civic affairs at community and state levels. Except for a nominal pay for days actually in session or traveling on business for the Board, their only compensation is the knowledge that they are serving their state and their nation. Yet they give without stint of their time and talents to the business of the Board not only in formal sessions but in travel and other activities to further the interests of the Department and North Carolina Agriculture.

During this bienium, the Board has spent 12 days in full sessions. For many of the members this means from one and one-half to two days away from their farms and businesses; and a number of meetings have necessarily had to be held during their busiest season. In addition, members have had to spend time on special committees appointed to work out details of transactions to present recommendations to the full Board.

The following summary of matters brought before the Board during the biennium gives some idea of the multitude and variety of decisions which must be made by the Board of Agriculture. This brief outline can give no real indication of how knotty and time consuming are many of the matters on which they must act.

ACTIVITIES OF THE ADMINISTRATIVE OFFICE

The many consumer protection and agricultural programs of the department require its administrative officers to participate in coordinated activities at the State, regional and Federal levels.

By legislation the Commissioner of Agriculture is Chairman of the State Board of Agriculture, The State Board of Gasoline and Oil Inspection and The Board of Directors of the North Carolina Hall of Fame, member of the North Carolina Milk Commission, the Crop Seed Improvement Board and the Atomic Energy Advisory Committee.

In the state the Commissioner is a member of the Board of Directors of the Agricultural Foundation of North Carolina State University, the Cotton Promotion Committee, the North Carolina Board of Farm Organizations and Agencies, the North Carolina Committee on Migrant Labor, the Governor's Council on Occupational Health, the North Carolina Council on Food and

Nutrition, the North Carolina Veterinary School Selection Committee, and the Board of Directors of North Carolina Rural Rehabilitation Corporation.

The Commissioner is also, of course, a member and active participant in the National Association of the State Departments of Agriculture and the Southern Association of the State Departments of Agriculture. He was elected to the office of president of the Southern Association in June 1968, for the year 1968-69.

It was his privilege and honor as president to host the annual meeting of the Southern Association at Nags Head in June of 1969. Representatives of fourteen states and Puerto Rico came to Nags Head to attend business sessions and formal programs and to see entertainment and farming features of interest in eastern North Carolina.

This organization is made up of the two agricultural leaders in the South and it was a real honor to have them and their families in North Carolina.

At the annual meeting of the National Association of State Departments of Agriculture held in Syracuse, New York in September of 1969, Commissioner Graham was elected to their Board of Directors.

Regular meetings of this group during the year have given North Carolina a voice in helping shape the face of Agriculture in the country.

Under the old Structural Pest Control Law, Assistant Commissioner of Agriculture John L. Reitzel was appointed to represent the Department of Agriculture at large and under the new law he has been appointed a member of the Structural Pest Control Committee and has been named chairman of the group. J. Hawley Poole has been named the Board of Agriculture representative on this Committee.

The Assistant Commissioner of Agriculture also represents the Department on the Animal Nutrition Committee at North Carolina State University, the Fertilizer Advisory Committee, and is a member of the Southern and National Associations of Pesticide, Seed and Fertilizer Regulatory Officials.

Two advisory committees which are appointed by the Commissioner have found themselves rather busy during recent months.

They are the Hog Cholera Advisory Committee and the Pesticide Advisory Committee.

Both groups have met with the Commissioner to discuss their respective problems and advise him on the course of action which will be in the best interest of all concerned.

PERSONNEL CHANGES

The North Carolina Department of Agriculture has lost some valuable personnel in key positions during this biennium.

J. Donald Coxe, publicity director for the state fair for eleven years died in August 1968 after a long illness. He was succeeded in his post at the state fair by Bob Wills, a member of the Raleigh Times sports staff.

Dr. E. W. Stapp, who served as State Supervisor of Meat and Poultry Inspection retired December 1, 1968 after heading the program since it was inaugurated in 1961. Taking over the inspection post was Dr. R. R. Miller. He had served under Dr. Stapp since 1965.

State Statistician, Henry L. Rasor retired on October 31, 1969. He had served as head of the cooperative crop reporting service in North Carolina since 1953. His Assistant Olaf Wakefield also retired in late 1969. They had served North Carolina well and were very much missed in the Department. They were replaced by Russell P. Handy as State Statistician and William C. Hinson, assistant.

The end of the biennium on July 31, 1969 saw an almost mass exodus of Division heads. That date marked the retirement of Dr. E. W. Constable, who served as State Chemist for 26 years. His service was marked with a multitude of honors and recognitions for his contributions to North Carolina. He was succeeded by Dr. W. Y. Cobb, an assistant professor of Food Science at North Carolina State University for five years.

Also retiring on July 31 was George D. Jones, State Entomologist. He had served well for five years in a post of growing importance to the people of North Carolina. The new state

Entomologist is A. S. Elder, an employee of the division for six years.

The other retiree on July 31 was Mrs. M. Pauline DeCosta, Director of the Publications Division and Secretary to the Board of Agriculture. She had been employed by the Department for 23 years. She had been Director since 1960 in a post which grew increasingly complex as the working of the Department and the Board of Agriculture expanded. Taking over Mrs. DeCosta's duties was F. Carlyle Teague. He came to the Department last year after four years as manager of member and employee relations for Central Carolina Farmers, Inc. in Durham.

AGRICULTURAL HALL OF FAME

The Agricultural Hall of Fame which was dedicated on February 23, 1967, continued as a vehicle for honoring those who contributed so much to North Carolina Agriculture during their lifetime.

During the biennium two leaders were enshrined and another was voted in with formal ceremonies to take place in late 1970.

The two, Dr. B. W. Kilgore and J. E. Winslow were enshrined in formal ceremonies at Raleigh on March 4, 1969.

Dr. Kilgore served as State Chemist with the North Carolina Department of Agriculture, Director of the North Carolina Experiment Station, Director of the North Carolina Extension Service and Dean of Agriculture at North Carolina State College. In 1919 he founded Pine State Creamery.

Winslow was a leader in the formation of the North Carolina Farm Bureau and served for 10 years as its first President.

He served on the North Carolina Board of Agriculture and as a director of Flue-Cured Stabilization Corporation.

Alonzo Edwards has been accepted in the Hall of Fame but has not been enshrined.

AWARDS AND HONORS

The caliber of employees in the Department of Agriculture continues to increase. Their attitude reflects a genuine desire to serve the citizens of North Carolina to the best of their ability.

The dispatch and efficiency with which they discharge their duties adds greatly to the effectiveness of the Department.

The degree of excellence which has been attained by the employees of the department is evidenced by the awards and honors which they have earned.

The top award of the biennium was won in December of 1969 by Commissioner Graham.

He was honored at that time by the Progressive Farmer magazine as the Man-of-the-Year for 1969 in North Carolina agriculture.

Commissioner Graham was again honored in April of 1970 by the North Carolina Wildlife Federation when he was presented the Federation Governor's Award for Environmental quality.

The Employee of the Month award, initiated during the 1964-66 biennium, has continued. The selection committee tries to pick the employee who has made the most outstanding contribution during the month the award is given.

Recipients of the award during the biennium were:

EMPLOYEES OF THE MONTH

1968

July—Dr. Earl W. Stapp—Meat and Poultry Inspection Supervisor

August—John H. Cyrus—Marketing Specialist in the Markets Division

September—(None)

October—George D. Jones—State Entomologist and Director of the Entomology Division

November—Bailey D. Rich—Marketing Specialist in the Division of Markets

December—Dr. David L. Wray—Entomologist III in the Division of Entomology

1969

January—Mrs. Joanne Bass—Secretary to the Director of the Dairy Division

February—A. G. Campbell, Jr.—Feed and Insecticide Inspector in the Analytical Division

March—Mrs. Linda Nunalee—Home Economics in the Promotions Section of the Markets Division

April—Mrs. Alicegrae F. Ferrell—Senior Accounting Clerk in charge of payrolls for the Accounts Division

May—Dr. T. F. Zweigart—State Veterinarian and Director of the Veterinarl Division

June—William G. Parham—Director of the Warehouse Division

July—Ray DeWitt Sigmon—Gasoline and Oil Inspector of the Gasoline and Oil Division

August—(None)

September—Mary Frances Allen—Assistant Farm Census Supervisor of the Statistics Division

October—Arthur K. Pitzer—Manager of the North Carolina State Fair

November—Virginia P. Johnson—Administrative Secretary in the office of Commissioner James A. Graham

December—William B. Buffaloe—Analytical Chemist in the Chemistry Division

1970

January—Charlie H. Cross, Jr.—Duplicating Machine Operator in the Statistics Division

February—Alex M. Lewis—Director of the Accounts Division

March—Mildred W. Thomas—Seed Analyst in the Seed Testing Division

April—Carey Ashley—Motor Fuel Analyst in the Gasoline and Oil Inspection Division

May—Louise T. Dunn—Secretary in the Markets Division's Asheville office

June—(None)

July—Dr. T. B. Ryan—Director of the Livestock and Poultry Disease Diagnostic Laboratories

EMPLOYEES OF THE YEAR

The employees honored as the Employee-of-the-Year were:

1969—Dr. E. W. Constable—State Chemist and Director of the Analytical Division

1970—Mrs. M. Pauline DeCosta—Director of the Publications Division and Secretary to the Board of Agriculture.

COMMISSIONER OF AGRICULTURE'S 4-H AWARD

A special award which was announced this biennium by Commissioner Graham was the Agriculture Commissioner's 4-H Award.

The large impressive trophy will be presented annually to the most outstanding 4-H club boy in North Carolina.

The first presentation was made during the State 4-H Club Congress in July 1970 to Wayne Black from Davidson County.

His name was engraved on the large trophy and he received a smaller replica to keep permanently.

HIGHLIGHTS OF BOARD MEETINGS**1968-1970 Biennium****October 14, 1968**

J. Atwell Alexander, Fred N. Colvard, Guy E. Fisher, Richard N. Barber, Jr., David Townsend, Jr., Claude T. Hall, Charles F. Phillips, J. H. Poole, Henry Gray Shelton.

Recommended the Highway Department be granted a right-of-way on the property of Western North Carolina Agricultural Center in Buncombe County.

Recommended leasing of specific units of the State Farmer's Market property to Mac's Produce Company and Ford's Produce Company.

Approved all expenditures with the foreclosure sale and sale of Moyock Trading Company property to Currituck Grain, Inc.

Approved an additional loan from the Warehouse Fund to E-B Grain Company of Battleboro in the amount of \$15,000 as requested.

Attended opening ceremonies and inspected 1968 State Fair.

November 25-26, 1968

Charles F. Phillips, George P. Kittrell, Henry Gray Shelton, J. H. Poole, David Townsend, Jr., G. E. Fisher, Richard N. Barber, J. Atwell Alexander.

Held public hearing and amended dairy regulations to conform with the 1965 edition of the "United States Public Health Service Grade A Milk Ordinance" and to add definitions and standards for Imitation Milk and Imitation Milk Products.

Formally acknowledged acceptance of the annual report Structural Pest Control Committee for the year ending June 30, 1968.

Renewed a lease of specific units of the State Farmers Market to the Pate-Derby Company of Raleigh.

Recommended the State Highway Commission be granted an easement for land at the Oxford Tobacco Research Station for improvements to secondary road, Granville County.

Legal Council explained that the laws governing bottling plants would not permit the use of an air rinse on non-returnable bottles.

Adopted a resolution expressing great respect, admiration and deep sense of loss by the death of Frederick O. Bowman, executive secretary of the North Carolina Bottlers Association.

Authorized a nine day 1969, State Fair and authorized the State Fair Manager to raise the rents for Dorton Arena to \$500 a day. Agreed the matter of complimentary gates passes was an administrative decision for the Fair Manager.

Held public hearing to amend bakery regulations to permit baking, storing and displaying frozen pies in stores and supermarkets meeting standards

of product quality and sanitary conditons. Authorized the Commissioner to appoint a committee to determine if agreement could be reached as to what legal changes should be made.

Held a public hearing and amended the regulations governing shell eggs to prohibit the sale of cracked or checked eggs in retail outlets.

Held a public hearing and amended Brucellosis Regulations.

Held a public hearing and amended Fertilizer-pesticide mixture regulations. Adopted a resolution recognizing David S. Coltrane's contribution to agriculture and expressing a deep sense of loss in his death.

March 3, 1969

J. Atwell Alexander, Richard N. Barber, Jr., Fred N. Colvard, G. E. Fisher, Claude T. Hall, George P. Kittrell, Charles F. Phillips, J. H. Poole, Henry Gray Shelton, David Townsend, Jr.

Held a public hearing and amended bottle beverage regulations.

Requested Attorney General to assign Millard Rich as full time legal council to the Department of Agriculture.

Agreed to investigate a request by Southern Cotton Storage that the Department of Agriculture release a portion of land on which the Department holds a deed of trust.

Held a public hearing and revised quarantine regulations and regulated areas for the soybean cyst nematode, witchweed and whitefringed beetle.

Voted to repeal subsection (f) North Carolina of Chapter I — Article 13, Sweet Potato Weevil, Section 1-124.

Approved holding a referendum in 1969, of "Nichols for Know-How".

Authorized the North Carolina Soybean Association to hold a referendum in 1969, on the question of continuing to levy an assessment on soybeans.

Authorized North Carolina Peach Growers Society to hold referendum upon question of levying an assessment on Peach Trees in the commercial peach growing counties.

Adopted resolutions honoring the late W. P. Hedrick and C. W. Pegram.

June 2-3, 1969

J. Atwell Alexander, Richard N. Barber, Guy E. Fisher, Claude T. Hall, George P. Kittrell, Charles F. Phillips, J. H. Poole, Henry Gray Shelton, David Townsend, Jr.

Held public hearing and amended veterinary regulations concerning anti-hog cholera serum, brucellosis tests for Grade A dairy herds, fees for blood testing poultry.

Emergency rules and regulations established to prevent the spread of hog cholera were approved.

Dr. Donald Eaddy was approved head of Soil Testing Division.

Authorization given for a resolution in appreciation of the services of Dr. Preston Reid.

Approval was given for a new consignment system for feeder pigs.

Held public hearing and readopted regulations to prohibit sale or display of cracked or checked eggs in retail stores and the sale of such eggs to institutional consumers.

Heard report by David White, executive secretary of the North Carolina Egg Marketing Association and Joe Suggs, executive secretary of the North Carolina Peanut Growers Association.

Approved a five year lease of 11,200 square feet of warehousing at the State Farmers Market to Thomas & Howard Company of Durham, Inc.

Approved sale of approximately 30 acres of Piedmont Test Farm property to Thonet, Inc. of N. C. for \$100,000.00.

Approved an easement across the Peanut Belt Research Station at Lewiston to the Lewiston-Woodville Utilities Association, Inc. and an easement to the Carolina Telephone and Telegraph Company of Rocky Mount.

The real estate committee was authorized to act for the board in the sale of land in the Oxford Tobacco Research Station, Oxford, N. C. to the Granville Industrial Developers.

Authorized the sale of no more land north and west of the old Durham Highway beside tracts A & B at the Oxford Tobacco Research Station.

Authorized a resolution honoring Miss Beenie Lou Williams, secretary at the Coastal Plain Research Station.

Accepted audit report for operation of the State Fair from January 1, 1968 through December 31, 1968 with commendation to Mr. Arthur K. Pitzer, Manager of the North Carolina State Fair.

Approved lease of Fair race track to Elcar, Inc. for stock car races.
Held public hearing and amended fertilizer regulations for the year beginning July 1, 1969.

Approved a loan of \$100,000 to Tri-County Chemical in Bethel, N. C. from the Warehouse fund.

Approved E and B Company be licensed under the Warehouse System.

June 25, 1969

J. Atwell Alexander, Richard N. Barber, Jr., Guy E. Fisher, Claude T. Hall, Charles E. Phillips, Henry Gray Shelton.

Millard R. Rich, assistant attorney general, reported on the status of the compulsory meat inspection act ratified by the General Assembly, June 19, 1969.

Authorized interest rate of 7% on \$100,000 loan to Tri-County Chemical in Bethel, N. C. Loan was approved by the Board on June 3, 1969.

Resolved deep appreciation to the Southern Association of State Departments of Agriculture for holding its 1969 meeting in North Carolina.

October 16, 1969

J. Atwell Alexander, Guy E. Fisher, Claude T. Hall, George P. Kittrell, Charles F. Phillips, J. H. Poole, Henry Gray Shelton, James L. Sutherland.

Governor Robert W. Scott was present for the swearing in of Mr. Hall and Mr. Poole to new terms and Mr. Sutherland to his first term. Supreme Court Justice Carlisle W. Higgins administered the oath of office.

Governor Scott commended the Board as a hard working group.

A plaque was presented to the Governor with the names of all Commissioners of Agriculture and all Board members since the Department was established in 1877.

A public hearing and a resolution passed for certification and authorization of the North Carolina Association of Nurserymen to conduct a referendum on the question of levying an assessment on acreage of saleable nursery stock.

Held a public hearing on a request by the North Carolina Wildlife Federation that regulations be adopted prohibiting the use, manufacture, formulation, transportation and sale of DDT in North Carolina; and restrict the sale of other persistent chlorinated hydrocarbons. All testimony was heard but action was deferred pending further study.

Approved the leasing of six units of the State Farmers Market property for one year to Mac's Produce.

Held a public hearing on a proposal to add an article to Chapter I of the rules and regulations providing for quarantine areas infected with imported fire ants.

Approved regulations contained in an emergency proclamation which was issued by the Commissioner of Agriculture on July 18 to prevent the spread of hog cholera.

Approved conditions under which indemnity would be paid to swine producers for losses due to hog cholera.

A new seal for the Department of Agriculture was officially adopted.

November 12, 1969

J. Atwell Alexander, Fred N. Colvard, Guy E. Fisher, George P. Kittrell, Charles F. Phillips, J. H. Poole, Henry Gray Shelton, James L. Sutherland, David Townsend, Jr.

Held a public hearing and amended the regulations governing the sweetening of soft drinks.

Revised wording of conditions under which indemnity for hog cholera would be paid.

January 26-27, 1970

J. Atwell Alexander, Guy E. Fisher, Claude T. Hall, Charles F. Phillips, J. H. Poole, Henry Gray Shelton, James L. Sutherland, David Townsend, Jr.

Approved request for the North Carolina Yam Commission to hold a referendum among sweet potato producers.

Approved the purchase of land for a diagnostic laboratory.

Approved recording of the regulations of the Veterinary Division.

Held public hearing and amended bottling plant regulations.

Held a public hearing and added an article to the entomology regulations.

Reviewed the Capital Improvement budget requested for the Department for the 1971-73 biennium.

Approved a request for an agronomic services laboratory to be built in the vicinity of Raleigh.

Approved a request for \$2,481,500 for a building to house the North Carolina State Museum of Natural History.

Approved a request for \$120,000 to purchase a warehouse for storing food for distribution in Asheville, North Carolina.

Approved the remainder of the Capital Improvement requests and the operating budgets as presented the day before subject to review of any items that had been questioned.

Observed a moment of silence in memory of the late Mr. William Ivan Bissett, former Board member. Sent message of sympathy to his wife and family.

June 1-2, 1970

J. Atwell Alexander, Claude T. Hall, Guy E. Fisher, George P. Kittrell, J. H. Poole, Henry Gray Shelton, James L. Sutherland, David Townsend, Jr., Charles F. Phillips.

Held a public hearing and approved the sale of ice cream, ice milk and sherbert in a 1¼ gallon container.

Held a public hearing and approved the use of the Milko-Tester as an official method of determining the fat content of raw, unhomogenized milk.

Approved the appointment of Dr. William Y. Cobb as State Chemist.

Approved the preparation of a resolution honoring retiring State Chemist Dr. E. W. Constable for his outstanding contribution to the Department.

Approved the appointment of F. Carlyle Teague as Director of the Publications Division.

Approved the preparation of a resolution honoring retiring Director of Publications, Mrs. Pauline DeCosta for her outstanding contribution to the Department.

A report was made on the status of the land remaining for possible sale at the Oxford Research Station.

Recommended to the Department of Administration that the Department of Agriculture should exercise the option on the Best Farm at \$168,750 as soon as possible.

Agreed to instruct the Director of Research Stations to determine how much land would be involved in the request of Duke Power Company for a right of way over land on the Piedmont Research Station.

Held a public hearing and amended the regulations to require tuberculin tests for dairy cattle every three years rather than annually and to require cattle to be back tagged to determine the herd of origin.

Approved the separation of Chapter VIII into two separate chapters, one entitled "Feeds and Canned Dog and Cat Foods" and the other, "Liming Materials and Fertilizers."

Held a public hearing and amended regulations requiring a 30 day brucellosis official blood test to 60 days providing all counties in the state of origin are certified brucellosis free.

Approved amendment of horticultural crops and animal products to require that when payment of fees is not made as directed, grading service may be refused until payment is remitted.

Report on 1969 State Fair audit and future plans were presented.

Amended seed regulations to require minimum germination of seed peanuts to be 75%.

Gave the Commissioner of Agriculture authority to collect additional voluntary payment by the members of the N. C. Egg Marketing Association along with the official 2¢ a case.

Held a public hearing and readopted the rules and regulations governing the fertilizer grade list for the year beginning July 1, 1970.

No changes were approved in the bag weights of fertilizer.

Action was deferred on a request to allow specialty fertilizer-herbicide and/or fungicide mixtures in package sizes of the seller's choice.

Approved a request by the Standard Spray and Chemical Company to register their peanut pesticides in North Carolina provided they were labeled properly.

Held a public hearing and amended regulations governing the filling and refilling of containers for pesticides.

A report was presented on the shortages discovered at the Southeastern Farmers Grain Association, Inc., Warsaw, North Carolina.

ACCOUNTS

ALEX M. LEWIS

Controller

The Central Division of Accounts and Personnel is responsible for management and control of the fiscal and personnel affairs for the Department of Agriculture proper and all other General Fund and Special Fund Programs administered by the department. Responsibilities of this division include: procurement of operational funds, procurement of operational supply requirements, acceptance and accounting for receipts, the disbursement of funds, budget maintenance and control, the collection of a variety of taxes and fees and the collection of



assessments for ten agricultural promotional organizations and foundations, and personnel management and control.

DEPARTMENT OF AGRICULTURE

General Fund — Code 28021

Statement of Disbursements

July 1, 1968 - June 30, 1970

Summary By Purposes

	1969-70	1968-69
General Administration: -----	\$ 435,674.24	\$ 355,561.41
Administration -----	99,689.46	84,024.16
Accounting -----	140,158.47	111,694.91
Publications -----	84,402.64	61,255.73
Custodial -----	12,646.72	9,864.00
Miscellaneous -----	98,776.95	88,722.61
Inspection and Regulation: -----	1,748,616.50	1,386,363.78
Feed, Fertilizer, Insecticide Inspection --	124,526.31	108,120.48
Egg Inspection -----	74,479.51	59,007.45
Entomology Inspection -----	224,230.56	175,849.22
Weights and Measures Inspection -----	229,628.86	188,483.30
Meat and Poultry Inspection -----	1,095,751.26	854,903.33

Markets Division -----	733,489.65	594,799.52
Analytical and Regulation: -----	1,120,362.23	909,571.07
Dairy Services -----	155,792.16	116,527.69
Seed Testing -----	186,783.58	149,280.66
Analytical (Chemistry) -----	584,578.75	464,741.23
Soil Testing -----	193,207.74	179,021.49
Crop Statistics Division -----	225,253.68	206,488.63
Veterinary Division -----	1,449,724.70	962,455.12
Research Stations Operations -----	1,111,551.26	922,340.14
State Museum of Natural History -----	122,199.56	89,924.14
Distribution of USDA Donated Commodities:		
Revolving Fund -----	70,276.73	56,363.54
General Program — Distribution to Needy Families -----	586,578.84	563,185.37
Federal Financial Assistance Fund -----	48,807.67	
Imprest Cash Fund -----	10,750.00	9,250.00
Agricultural Center, Western, N. C. -----	3,978.39	4,056.46
Tokyo, Japan Food Exhibition -----		(16.22)
Foreign Trade Development -----	10,437.22	
Structural Pest Control -----	63,546.59	55,129.17
Transfer to 1970-71 Deferred Obligations -	50,913.00	
TOTAL DISBURSEMENTS -----	<u>\$7,792,160.26</u>	<u>\$6,115,472.13</u>

Summary By Objects

	1969-70	1968-69
Salaries and Wages -----	\$4,859,741.81	\$4,286,929.85
Supplies and Materials -----	323,679.19	311,150.45
Postage, Telephone, Telegraph and Express -----	93,703.36	75,677.46
Travel Expense -----	423,894.42	394,304.78
Printing and Binding -----	43,775.49	44,069.83
Motor Vehicle Operation -----	80,928.56	63,668.21
Lights, Power and Water -----	15,714.38	12,653.90
Repairs and Alterations -----	74,972.81	71,565.65
General Expense -----	961,570.02	631,861.88
Insurance and Bonding -----	4,132.00	3,336.00
Equipment -----	226,992.33	171,525.82
Stores for Resale -----	5,154.10	8,054.66
Deferred Obligations Transferred to 1969-70 -----		26,458.00
Imprest Cash Fund -----	10,750.00	9,250.00
Contribution to Retirement System -----	407,617.93	3,216.09
Contribution to Social Security -----	208,620.86	1,749.55
Deferred Obligations Transferred to 1970-71 -----	50,913.00	
TOTAL DISBURSEMENTS -----	<u>\$7,792,160.26</u>	<u>\$6,115,472.13</u>

DEPARTMENT OF AGRICULTURE

Code 28021

Statement of Receipts

Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Agricultural Receipts:		
Fertilizer Tax -----	\$ 432,981.78	\$ 424,891.32
Feed Tax -----	220,488.24	196,557.79
Research Stations -----	380,749.76	343,465.18
Miscellaneous -----	483,620.23	465,632.57
Federal Funds:		
Consumer Marketing Service -----		3,000.00
Research and Marketing Act -----	73,302.00	78,786.68
USDA Cooperative Agreement -----	2,061.80	3,242.70
Federal Aid to Needy Counties -----	67,649.36	55,519.89
Talmadge - Aiken Act -----	87,202.70	50,047.44
Wholesome Meat Act -----	476,867.32	401,825.55
Federal Financial Assistance -----	48,807.67	
Miscellaneous Receipts:		
Sale of Equipment -----	8,299.43	5,318.09
Transfers from Other Codes -----	30,397.25	50,656.00
Miscellaneous -----	107,625.83	112,987.03
Imprest Cash Redeposit -----	10,750.00	9,250.00
Sale of Automobiles -----	2,475.00	
Transferred from 1968-69 for Deferred Obligations -----	26,458.00	
Wages for Employees Loaned -----	4,671.57	
Structural Pest Receipts -----	76,132.90	54,220.00
TOTAL RECEIPTS -----	<u>\$2,540,540.84</u>	<u>\$2,255,400.24</u>

Summary Statement of Receipts and Disbursements

	1969-70	1968-69
General Fund Appropriation -----	\$5,648,053.00	\$4,326,808.00
Receipts -----	2,540,540.84	2,255,400.24
Total Availability -----	<u>\$8,188,593.84</u>	<u>\$6,582,208.24</u>
Disbursements -----	7,792,160.26	6,115,472.13
Unexpended Balance June 30 -----	<u>\$ 396,433.58</u>	<u>\$ 466,736.11</u>

GASOLINE AND OIL INSPECTION

General Fund — Code 12201

Summary Statement of Receipts and Disbursements

July 1, 1968 - June 30, 1970

	1969-70	1968-69
General Fund Appropriation -----	\$ 160,864.00	\$ 156,025.00
Receipts:		
Transfer from Highway Fund -----	482,555.00	378,230.00
Sale of Equipment -----	16.60	
Disbursements -----	<u>633,291.90</u>	<u>500,336.77</u>
Unexpended Balance of Appropriation -----	<u>\$ 10,143.70</u>	<u>\$ 33,918.23</u>

STATE WAREHOUSE SYSTEM FUND**Special Fund — Code 28727****Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969**

	1969-70	1968-69
Cash Balance — July 1	\$ 19,631.39	\$ 35,777.68
Receipts:		
Supervision Collections	27,248.50	23,219.44
Fire Losses	16,067.77	16,029.76
Repayment of Loans	46,932.00	81,993.71
Sale of U. S. Treasury Bills	724,940.00	426,000.00
Sale of Moyock Trading Company		37,050.00
Sale of Equipment	40.35	107.59
Settlement of Judgment Against E D. Whedbee Estate	1,759.01	
Disbursements:		
Supervision Expenditures	37,323.69	37,436.02
Fire Losses	16,067.77	16,029.76
Loans to Warehouses	175,000.00	15,000.00
Purchase of U. S. Treasury Bills	596,062.40	531,611.00
Fire Insurance Premium — Moyock Trading Company		(250.00)
Foreclosure Sale — Moyock Trading Company		720.01
Cash Balance — June 30	12,165.16	19,631.39
Loans to Warehouses	449,696.70	321,628.70
Invested in 2½ % U. S. Govt. Bonds	87,500.00	88,000.00
Invested in U. S. Treasury Bills	160,000.00	277,440.00
Total Worth — June 30	\$ 709,361.86	\$ 706,700.09

COOPERATIVE INSPECTION SERVICE**Special Fund — Code 28731****Statement of Changes in Fund Balance
Years Ended June 30, 1970 and June 30, 1969**

	1969-70	1968-69
Fund Balance July 1	\$ 549,104.91	\$ 557,647.23
Receipts	831,948.16	804,598.45
Disbursements	888,568.03	813,140.77
Fund Balance June 30	\$ 492,485.04	\$ 549,104.91
Fund Balance Represented by:		
Treasurer's Cash	\$ 452,485.04	\$ 509,104.91
2½ % U. S. Government Bonds	40,000.00	40,000.00
Balance as Above	\$ 492,485.04	\$ 549,104.91

STRUCTURAL PEST CONTROL**Special Fund — Code 28735****Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969**

	1969-70	1968-69
Cash Balance — July 1	\$ 11,416.90	\$ 14,576.36
Receipts		54,220.00
Disbursements:		57,379.46
Transferred to Code 28021	11,416.90	
Cash Balance — June 30	—0—	\$ 11,416.90

CREDIT UNION SUPERVISION

Special Fund — Code 28739

Statement of Changes in Cash Balance

Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 135,138.87	\$ 117,005.43
Receipts -----	158,246.20	136,400.03
Disbursements -----	113,391.31	118,266.59
Cash Balance — June 30 -----	<u>\$ 179,993.76</u>	<u>\$ 135,138.87</u>

SHEEP AND WOODLAND REVOLVING FUND

Special Fund — Code 28745

Statement of Changes in Cash Balance

Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 89,513.75	\$ 96,984.11
Receipts -----	117,656.38	92,647.92
Disbursements -----	117,507.47	100,118.28
Cash Balance — June 30 -----	<u>\$ 89,662.66</u>	<u>\$ 89,513.75</u>

SPECIAL DEPOSITORY ACCOUNT

Special Fund — Code 28751

Statement of Changes in Cash Balance

Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 129,640.36	\$ 140,235.14
Receipts:		
Cash Bond Deposits -----	1,000.00	
Surplus Commodities Revolving Fund --	6,526.92	5,943.34
Research and Marketing Act -----	73,302.00	73,302.40
Federal Aid to Needy Counties -----	68,529.23	52,651.68
Wholesome Meat Act -----	456,784.50	429,824.01
Talmadge — Aiken Act -----	101,498.37	
Federal Financial Assistance -----	314,350.00	
Disbursements:		
Refund of Bond Deposits -----		732.44
Transfer to Code 28201:		
Revolving Fund -----	9,827.37	843.65
RMA -----	73,302.00	81,786.68
Contingency Fund -----		31,608.00
Federal Aid to Needy Counties -----	67,649.36	55,519.89
Wholesome Meat Act -----	477,569.12	401,825.55
Talmadge - Aiken Act -----	64,148.40	
Federal Financial Assistance -----	48,807.67	
Reimburse USDA — Cash June 30:		
Federal Aid to Needy Counties -----	10,654.29	
Wholesome Meat Act -----	21,884.70	
Cash Balance — June 30 -----	<u>\$ 377,788.47</u>	<u>\$ 129,640.36</u>

OPERATION OF FARMERS MARKET

Special Fund — Code 28755

Statement of Canges in Cash Balance

Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1	\$ 20,659.20	\$ 58,897.98
Receipts	98,139.06	87,112.42
Disbursements	95,815.27	125,351.20
Cash Balance — June 30	<u>\$ 22,982.99</u>	<u>\$ 20,659.20</u>

CAPITAL IMPROVEMENTS OF 1959

Code 65961

Statement of 1959 Capital Improvements

Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Appropriation	\$	\$ 367.60
Receipts		
Disbursements		
Unexpended Balance of Appropriation Reverted to General Fund 6-30-69		367.60
Balance		<u><u>—0—</u></u>

CAPITAL IMPROVEMENTS OF 1961

Code 66108

Statement of 1961 Capital Improvements

Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Appropriation	\$	\$.33
Receipts		
Disbursements		
Unexpended Balance of Appropriation Reverted to General Fund of 6-30-6933
Balance		<u><u>—0—</u></u>

CAPITAL IMPROVEMENTS OF 1963

Code 66354

Statement of 1963 Capital Improvements

Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Appropriation	\$	\$ 3,547.11
Receipts		
Disbursements		2,550.89
Unexpended Balance of Appropriation		<u>\$ 996.22</u>
Unexpended Balance of Appropriation Reverted to General Fund 6-30-69		<u>\$ 996.22</u>
Balance		<u><u>—0—</u></u>

CAPITAL IMPROVEMENTS OF 1965**Code 66558****Statement of 1965 Capital Improvements
Years Ended June 30, 1970 and June 30, 1969**

	1969-70	1968-69
Appropriation -----	\$ 19,638.00	\$ 35,239.41
Receipts		
Disbursements -----	19,492.00	15,601.41
Unexpended Balance of Appropriation ----	<u>\$ 146.00</u>	<u>\$ 19,638.00</u>

CAPITAL IMPROVEMENTS OF 1967**Code 66770****Statement of 1967 Capital Improvements
Years Ended June 30, 1970 and June 30, 1969**

	1969-70	1968-69
Appropriation -----	\$ 163,144.07	\$ 459,030.45
Receipts:		
Transferred from Code 28741, State		
Fair Operations -----	160.92	777.00
Transferred from Code 28755, Operation		
of Farmers Market -----	6,827.00	48,173.00
Sale of Land, Oxford Tobacco Research		
Station -----		16,945.00
Sale of Building, Upper Coastal Plain		
Research Station -----		50.00
Sale of Timber Tidewater Research		
Station -----		3,925.80
Sale of Building, Oxford Tobacco		
Research Station -----		15.00
Sale of Timber, Coastal Plain		
Research Station -----		3,484.80
Insurance Settlement, Fire Damage to Timber,		
Oxford Tobacco Research Station -----		287.38
Transferred from Code 66558 -----	19,492.00	
Disbursements -----	124,676.05	369,544.36
Unexpended Balance of Appropriation ----	<u>\$ 64,947.94</u>	<u>\$ 163,144.07</u>

CAPITAL IMPROVEMENTS OF 1969**Code 66970****Statement of 1969 Capital Improvements
Years Ended June 30, 1970 and June 30, 1969**

	1969-70	1968-69
Appropriation -----	\$ 993,100.00	
Receipts:		
Sale of Land, Old Piedmont Test Farm --	94,432.00	
Sale of Cows, Equipment and Milk Base,		
Coastal Plain Research Station -----	12,275.13	
Insurance Settlement — Burned Curing		
Barn, Oxford Tobacco Research Station	9,407.00	
Sale of Land, Oxford Tobacco Research		
Station -----	56,875.00	
Disbursements -----	19,138.17	
Unexpended Balance of Appropriation ----	<u>\$1,146,950.96</u>	

AGRICULTURAL FOUNDATION ASSESSMENT

Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 58,389.90	\$ 56,010.92
Receipts -----	182,175.05	169,765.81
Disbursements -----	180,590.59	167,386.83
Cash Balance — June 30 -----	<u>\$ 59,974.36</u>	<u>\$ 58,389.90</u>

APPLE ASSESSMENT

Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 127.60	\$ 100.32
Receipts -----	38,223.32	35,527.28
Disbursements -----	38,100.00	35,500.00
Cash Balance — June 30 -----	<u>\$ 250.92</u>	<u>\$ 127.60</u>

CATTLE ASSESSMENT

Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 851.69	\$ 9,954.04
Receipts -----	25,143.40	28,097.65
Disbursements -----	25,500.00	37,200.00
Cash Balance — June 30 -----	<u>\$ 459.09</u>	<u>\$ 851.69</u>

COTTON ASSESSMENT

Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 124.94	\$ 231.11
Receipts -----	18,858.08	18,093.83
Disbursements -----	18,700.00	18,200.00
Cash Balance — June 30 -----	<u>\$ 283.02</u>	<u>\$ 124.94</u>

EGG ASSESSMENT

Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 1,177.65	\$ 5,411.55
Receipts -----	55,756.44	60,266.10
Disbursements -----	55,200.00	64,500.00
Cash Balance — June 30 -----	<u>\$ 1,734.09</u>	<u>\$ 1,177.65</u>

PEACH ASSESSMENT

Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 130.11	\$ 1,012.29
Receipts -----	2,040.68	5,492.82
Disbursements -----	1,490.00	6,375.00
Cash Balance — June 30 -----	<u>\$ 680.79</u>	<u>\$ 130.11</u>

PEANUT ASSESSMENT

Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 515.20	\$ 937.19
Receipts -----	62,875.54	64,478.01
Disbursements -----	62,800.00	64,900.00
Cash Balance — June 30 -----	<u>\$ 590.74</u>	<u>\$ 515.20</u>

SOYBEAN ASSESSMENT

Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 287.40	\$ 2,075.21
Receipts -----	83,073.38	64,912.19
Disbursements -----	82,500.00	66,700.00
Cash Balance — June 30 -----	<u>\$ 860.78</u>	<u>\$ 287.40</u>

SWEET POTATO ASSESSMENT

Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 157.98	\$ 216.06
Receipts -----	39,983.04	30,041.92
Disbursements -----	39,800.00	30,100.00
Cash Balance — June 30 -----	<u>\$ 341.02</u>	<u>\$ 157.98</u>

SWINE ASSESSMENT

Statement of Changes in Cash Balance
Years Ended June 30, 1970 and June 30, 1969

	1969-70	1968-69
Cash Balance — July 1 -----	\$ 1,988.47	\$ 1,360.47
Receipts -----	104,316.29	96,128.00
Disbursements -----	105,200.00	95,500.00
Cash Balance — June 30 -----	<u>\$ 1,104.76</u>	<u>\$ 1,988.47</u>

DIVISION OF CHEMISTRY

DR. W. Y. COBB

State Chemist



The currently, much publicized term "Consumer Protection" involves numerous consumer control laws of various ages. The N. C. Department of Agriculture is charged with the duty of administering a variety of these laws, a number of which it pioneered in and which, revised and updated periodically, it has administered for a period of time now rounding out a century.

Of these laws are a number which require the application of the science of chemistry for their enforcement. These, as followingly listed, constitute the basis of the work of the Division of Chemistry.

N. C. Aerial Crop Dusting Law, G.S. 106-65.13; N. C. Internal Combustion Engine Antifreeze Law, G.S. 106-569; N. C. Sanitary Bakery Inspection Law, G.S. 106-220; N. C. Artificially Bleached Flour Law, G.S. 106-210; N. C. Bottling Plant and Soft Drink Inspection Law, G.S. 106-174; N. C. Law Regulating Canned Dog Food, G. S. 106-146; N. C. Flour, Bread and Corn Meal Enrichment Act, G.S. 106-219.1; N. C. Feed Law, G.S. 106-93; N. C. Fertilizer Law, G.S. 106-50.1; N. C. Food, Drug and Cosmetic Act, G.S. 106-120; N. C. Insecticide, Fungicide and Rodenticide Act, G.S. 106-65.1; N. C. Lime and Landplaster Law, G.S. 106-81; N. C. Linseed Oil Law, G.S. 106-285; N. C. Oleomargarine Law, G.S. 106-233.

The purposes of these laws, in summary, are to safeguard the health, welfare and economic interests of consumers, to assure sound and safe products which are truthfully and informatively labeled, to safeguard and promote sound businesses, and to curb spurious and misleading claims and representations, fraud and unscrupulous and destructive competition.

These purposes can be carried out only by such applications as chemical and related analyses. Obviously the quality, composition or truthfulness of the guarantees and labeling of products such as fertilizer, commercial feeds, pesticides or landplaster cannot be adequately judged by sight or feel or other human senses. Similarly the adulteration of products such as linseed oil and internal combustion engine antifreezes (automotive) cannot be so judged. This likewise applies in large measure to adulterated or misbranded foods, drugs and cosmetics.

Other requirements and applications for accomplishing the purposes of these control laws are the registration of products prior to offer for sale, issuance of permits and licenses to sell; meeting specific requirements as to standards, guarantees, composition and labeling, the latter including adequate notices, cautions and warnings, directions for use, and antidotes and first aid applications in cases of accidents with products of a highly hazardous nature; prescribing definitions and standards of identity and promulgating rules and regulations where necessary in the interests of consumers; inspecting premises, requiring satisfactory safeguards and sanitation for products for human consumption; collecting official samples for chemical and other analyses to determine compliance, and issuing reports thereon; checking credentials and qualifications for issuance of aerial crop dusting licenses; issuing warnings where deviations occur, embargoing violative products, cancellation of licenses, permits and registrations where defects or default come to light; and instituting court actions as circumstances ultimately may so dictate.

The work for the biennium as carried out under these activities is given in following sections.

COMMERCIAL FERTILIZERS, AGRICULTURAL LIMING MATERIALS AND LANDPLASTER

The purposes of the fertilizers, and the lime and landplaster laws are to assure to consumers adequate and sound supplies of these materials which are indispensable in agricultural production, and to suppliers of these materials a sound commercial environment for their production and sale.

The products covered are marketed in various forms — mixed fertilizers and fertilizer materials, both dry and liquids, packaged and in bulk, manipulated (processed and packaged) manures

and fortified mulches; dolomitic and calcitic liming materials as ground stone and burned products, and others; and calcium sulfate (landplaster) from various sources.

For evaluation of these products, commercial fertilizers require analysis for content of the **primary** plant foods (nitrogen, phosphate and potash), the **secondary** plant foods (calcium, magnesium, sulfur and boron), for chlorine and the acid-base residue qualities, and for the trace elements (boron, manganese, copper, iron, zinc, and molybdenum). Analyses of liming materials are for content of calcium, magnesium, acid-neutralizing values, and fineness of grind; for potash in lime-potash mixtures; and for calcium sulfate in landplaster.

In connection with the information of the foregoing paragraph, it should be taken into account that while the number of samples analyzed per year may remain relatively the same year after year, the amount of analytical work required to clear them may be multiplied several times. In earlier years the analyses of these primary plant foods served the needs of the time. Later developments brought in the four secondary elements. Chlorine and acid-base effects added two more. The advent of trace elements added another five. Estimating from the present day run of guarantees, analytical requirements have multiplied three to four times.

Summary of work of the biennium:

Official fertilizer samples	18,985
Unofficial samples (fertilizers and materials) ..	14
Official liming materials, lime-potash mixtures and landplaster	486
<hr/>	
Total	19,435

As analytical work was completed, the findings were supplied by individual official reports to those manufacturers, dealers and consumers immediately concerned. The collective results of each years work was then made available for the public in the annual issues of the department's "Fertilizer Report".

In summary for the biennium, with limited exceptions the products subject to the fertilizer and the lime and landplaster laws were in adequate supply, of normal quality and suitable for the intended agricultural purposes. Where deficiencies or defects appeared, they were adjusted or corrected in line with legal provisions.

Innovations and new developments in the fertilizer field, as

with new developments generally, are subject to imperfections and malfunctions, which, if permitted to drift, tend to evolve into fixed patterns detrimental to the products, the producers and the consumers alike, and which later will impose magnified problems of readjustment; whereas, prompt cooperative study and adjustment in soundly fitting these developments into the control system curbs misdirection and detriment and promotes mutual confidence and advantage.

Examples of innovations of recent years which have cleared the adjustment periods and are now normally functioning features in the fertilizer picture are the inclusion of secondary and trace elements in the old-line fertilizer guarantees, the sale of nitrogen solutions and anhydrous ammonia for direct application to soils, the transfer of fertilizer production from the earlier individual developers and manufacturers to subsidiaries of large corporations, and mixed fertilizers in liquid form. Blended fertilizers (products made by the so-called "blending plants" which procure ready-prepared materials for dry mixing and usually for sales in bulk) were accompanied by defects such as incompatible physical forms of materials, non-uniform mixing, segregation, erratic formulations, deficiencies, and lack of knowledge, experience and technical skills of operators. These difficulties were largely cleared up during the 1968-70 biennium and the products satisfactorily brought into the normal fertilizer control pattern.

The sale of commercial fertilizers in bulk form (delivered and spread on fields and offering economies and convenience), currently is in stages of expansion. In response to accompanying problems, special study and work on the application of officially prescribed methods of sampling for control work now is in process.

COMMERCIAL FEEDS

The purposes of the feed, and the canned dog food laws are to provide adequate and sound supplies of commercial feeds for livestock, domestic animals (including pets) and poultry, and to maintain a sound commercial status for their production. The various types of feeds include general purpose feeds, special purpose mixes (standardized), medicated and prophylactic feeds, concentrates, feed materials (single and mixes), mineral feeds, and pet foods (dry, canned and moist pack). They serve various needs such as dairying, diversified and livestock farming, cattle feed lots, pig parlors, poultry production and others.

Among the requirements for determining compliance and payment of inspection fees are registrations, checking of labels, statewide inspections and collection of official samples for analyses. Samples are analyzed chemically, microscopically and by other means to determine the content of crude protein, crude fat, and crude fiber; the presence, identity and quantity of drugs, of growth stimulants and of other additives; also the condition and presence of ingredients as compared to labeling claims, of substitutions and adulterants; and compliance with all guarantees and other requirements.

The increased use of additives in feeds such as hormones, other growth stimulants, and drugs both in prophylactic and therapeutic quantities, requires an added series of analyses which are specialties within themselves and which necessitate facilities and applications different and apart from those required in former feed work. Consequently, the clearing of a given number of samples per year as compared to earlier years more than doubles the amount of work required.

Coverage for the biennium was:

Official feed samples	5,858
Unofficial feed samples	240
Analysis of above feeds for drugs and other additives	(1,232)
Total	6,098

Official, individual reports were forwarded to the consumers and manufacturers concerned as soon as the analyses were completed. The work of each year collectively, including the individual analyses and other pertinent data, was made available to the public in the department's annual Feed Reports.

As of other periods, a number of deficiencies, deviations from guaranteed composition and other defects occurred. For deficiencies, penalty payments went to consumers who could be identified, otherwise into the agricultural fund. Other deviations were handled by appropriate corrections, the reprocessing of products, or by other means of disposal according to legal provisions.

The work of the biennium showed that in general the feeds (except for the drug and growth stimulant additives) maintained normal standards and quality. The drugs and growth stimulants continue to pose problems in formulation, uniformity of mixing, cross-contamination, and confusion both as to the additives present and the quantities used.

As a close appraisal doubtless will have disclosed, the combining of the relatively free limits of earlier feed mixing with the exacting limits of certain phases of veterinary pharmacy, similarly as combining blacksmithing and watchmaking, entails something more than the average run of effort and dexterity. Clearing up these defects remains a job on hand for control agencies and the industry.

ECONOMIC POISONS

Pesticides (economic poisons) are equally as indispensable in the agricultural production of foods and fibers as are fertilizers. This importance applies to products of nature such as forests and in the protection of both people and animals from carriers and vectors of diseases and parasites and various other pests. This was true before the advent of the multiple new products now in use, and control laws and agencies then were concerned with matters such as economics, frauds, residues, proper use, safety, and others.

Misuse of pesticides, just as is the case with other utilities such as axes, razors, and surgical instruments, carries its own penalties. Certainly, curbing misuse and determining the most appropriate applications is fully in order. These, along with the indispensability of these products, are among the concerns under the pesticide law.

The law applies to products such as insecticides, rodenticides, herbicides, fungicides, repellants, plant defoliants and retardants, and related materials for destroying, repelling, or mitigating pests. This law, similarly as the fertilizer and feed laws, has among its requirements the registration of all pesticides before being offered for sale, review of labels for compliance with various requirements such as identity of the product, name and address of the responsible agents, net content of the respective packages, the name and percent of each active ingredient along with the total percent of inert ingredients, validity of formulations, directions for proper use, cautions against misuse, and in case of exposure, first aid applications or antidotes for the highly dangerous chemicals. State-wide inspections are required as accessory in checking labeling, registrations, the payment of inspection fees, and for the collection of official samples for analysis in determining compliance with guarantees.

Official samples analyzed for the biennium were 1,274 in 1968 and 1,238 in 1969.

The work of the biennium indicated that standards were maintained on a normal level as compared with experience over a period of years and that generally satisfactory products were supplied to the users. Where defects or deviations occurred, the products involved were stopped from sale or removed from the market for correction or other handling as provided for by law.

Details of each year's work respectively along with other pertinent information were made available to the public through the Department's annual "Insecticide Report".

APPLICATION OF PESTICIDES BY AIRCRAFT

The application of pesticides by aircraft is a highly useful, and at times the only practical service available in combating pests in agriculture, forestry, industry, and public health. Examples are in treating large agricultural areas, repelling heavy onset of highly destructive or disease-carrying pests, applications under weather conditions too wet for use of ground vehicles, massive and fast applications involving pests such as locust swarms, the Florida fruit fly, the spread of fire ants, swamp and marsh applications where neither boats nor land vehicles can operate, in weed and brush control on power lines and others.

The purpose of the aerial crop dusting law is to assure adequate, sound and responsible service by qualified operators, and to curb unethical practices, irresponsible performance, and destructive competition.

The law originally was response to curb such practices as price-cutting with its attendant evils such as the application of the cheapest instead of the most appropriate pesticides, use of inadequate strength pesticide mixtures; or at times, dusts or water sprays containing no pesticides; inadequate coverage of crops, tearing down electric and telephone lines, landing in growing crops, damage to or destruction of farm buildings; and irresponsible or unqualified operators, the latter resulting in both losses of property and at times their own lives.

This background is again reviewed because of a persisting tendency of permitting procrastination to turn the usual run of events into highly critical situations, or, in other words, a fire company waiting to condition its vehicles until receiving an emergency call. Some operators wait until the last minute to qualify and procure liability insurance which requires time, but is prerequisite to licensing. A sudden onset of pests with damages mounting by the hour then impels farmers to choose the "hoped for" lesser of evils by employing an unlicensed operator,

statedly, even to the point of assuming responsibility for any fines for violations. The licensing system with its requirements of qualifying operators and carrying liability insurance curbs irresponsibility and is a protection both to farmers and sound operators. The value of such a system is apparent; its alternate, the chaos which preceded it.

The purpose and design of the law is primarily economic, involving contractual responsibility, operations and performance. These were the issues at the time of its enactment and it is in these areas that it was designed and has served. Criticism of its not being applied in other areas such as ponds, streams and other such waters, inhabited areas and environmental pollution is misplaced since that authority was not written into this law. (Residues in foods, feeds and potable waters are covered by the food and feed laws.) These additional concerns can be taken care of to such extent as may be desired by amending this law accordingly or by enacting new law, and in either case, providing the necessary facilities of enforcement.

Licenses issued for the biennium were: contractors — 88; applicators — 176; and aircraft — 175. Routine inspections were made throughout the active dusting and spraying seasons for possible failures in compliance.

The most prominent of defaults of the biennium were delayed registrations and operating without licenses. Considerable pressure was necessary in both years to correct the former, in some cases the "grounding" of operators being necessary. Eight indictments were brought for operating without licenses. As indicated in foregoing paragraphs, a better understanding of the aerial crop dusting law and its background is needed by both the current users and the suppliers of the service.

Information on the activities of each year, including the names and addresses of all licensees was made available to the public by publication in the annual "Insecticide Report".

AUTOMOTIVE ANTIFREEZES

Antifreeze compounds for use in the cooling systems of internal combustion engines of motor vehicles and other similar engine applications are, under present day considerations, a practical necessity for controlling freezing in the winter seasons and preventing icing in air conditioned vehicles in summer seasons. Also, with proper attention, these products can serve as year-round rust and corrosion inhibitors. The so-called "permanent" (high boiling) types are the only ones suitable for the present day

engines with pressure-type cooling systems and operating at higher temperatures. The term "permanent" however, needs to be interpreted only as "longer term of service" since these antifreezes deteriorate with use, the inhibitors are exhausted and they ultimately become corrosive. The average expectancy of satisfactory service in cooling systems in good condition is within one year. Alcohol types are not suitable for high-temperature service. Water-cooled systems require inhibitors at all times.

The purposes of the antifreeze law are to free the market of spurious and fraudulent antifreezes, to assure consumers of adequate supplies of quality products, eliminate unscrupulous competition, and safeguard North Carolina merchants from further entrapment in damage claims arising from harmful antifreezes.

Registrations in North Carolina for the year 1968-69 were 83 brands; for the year 1969-70, 78 brands, these representing a total of 35 manufacturers.

Moves have been made at times to penetrate the North Carolina market with watered and otherwise cheapened products with expansive claims, obscuring nomenclature and other deviations. The antifreeze law has served effectively to prevent such penetration. The North Carolina market is well served with standard products.

FOODS, DRUGS, AND COSMETICS

Foods, drugs, cosmetics, and therapeutic devices are covered by the overall food, drug, and cosmetic act and several subsidiary laws further applying to bottling plants and soft drinks, bakeries and their products, bleached flour; flour, bread, and corn meal enrichment, and oleomargarine. The first named law is basic and applies generally, whereas, the subsidiary laws individually, are further adapted to features characteristic of the particular plants and products to which they apply.

Basically, the overall purposes of these laws are to safeguard the health and welfare of consumers by providing safe, wholesome, economically sound and clearly and honestly labeled supplies of foods, drugs, cosmetics, and devices; and to support the sound suppliers of the materials and commodities covered by these laws by thwarting unscrupulous competition and eliminating fraudulent products. Initially, basic requirements for carrying out these purposes are that the products themselves be, or be composed of, sound and wholesome raw materials which are appropriate for the uses intended; that the handling, processing,

packaging, and storing be carried out in a sanitary manner fully adequate for public safety; and that the environment, equipment, housing, vehicles and other facilities which in any way make contact or affect the products be maintained in a manner so as to preclude any exposure that may result in contamination or have other deleterious effects.

Among further procedures required by these laws for determining compliance are regular, systematic, state-wide inspections with written inspection reports; recommendations, both written and verbal, for the correction of minor deviations; requiring the correction or discontinuation of operations where there is gross failure in compliance; instructing in the correction of minor defects such as labeling omissions or deviations; placing embargoes where there is, or appears to be question of hazard to public health or welfare; and, where fitting cooperative procedures prove inadequate, applying other provisions of the laws.

ADULTERATION, MISBRANDING, EMBARGOES

Deviations from legal requirements usually will classify under the designations "adulterated" or "misbranded". Beyond the basically required labeling format, the determination of compliance is dependent on the analysis of official samples of the subject commodities. Such samples are collected from all parts of the state by department inspectors, for label examination and for various analyses — chemical, physical, optical, microscopic, and other appropriate techniques.

The great bulk of foods on the market generally are found to be safe and satisfactory. However, there always are found appreciable quantities which are violative as is reflected in the result of some 2,406 samples analyzed and the 278 embargoes placed on questioned products. These represent all types and classes of foods and beverages such as flour, meal and numerous other cereal products, meats, vegetables; canned, bottled and frozen products, fruits (fresh and processed), bakery products, sugar, candies, pickles, condiments, salt, seasonings, butter, eggs, shortening, and numerous others.

Among the violative features found are sub-grade products, spoilage, rusty, leaky, and otherwise damaged containers; exposure to insanitation; contamination with filth, or by insects, rodents, worms, and other vermin; damage due to fires, floods, storms, wrecks, and other exposures, and various other sources of adulteration both inadvertent and at times intentional. Ex-

amples of intentional adulteration are such as ground hulls in peanut butter and cocoa, parched cereal in ground coffees, water — the universal adulterant — in oysters, milk, meats, and other foods; starches, gums, gelatins and cereals where purposely used in food as fillers, and chemical preservatives and artificial color in and on fresh meats.

The above-cited conditions, in addition to being violative and a hazard to public welfare, represent heavy economic losses. Accordingly, the embargoes were classified according to reasons for embargoing, as guidance in operations. In illustrative figures, instances of insect contamination occurred most frequently, 26%; fires, 20%; out-of-date veterinary drugs, 14%; rodent damage and contamination, 4%; spoilage of various kinds, 3%; water, defective packaging, and wrecks, approximately 1% each; and miscellaneous (as of the preceding paragraph), 30%. Obviously, emphasis on insect control is in order. Fire losses, as with those of other catastrophes, will fluctuate. The out-of-date drugs status is the result of a special campaign to clear up this defect. The analysis as a whole serves in orienting inspectional and other applications.

FIRES, STORMS, FLOODS, WRECKS

Fires, storms, floods and wrecks are commonly occurring causes of exposure, damage, contamination and spoilage of foods and drugs. Such exposure is a liability to human health and welfare. Lack of knowledge of the accompanying dangers and the tendency of over-zealous salvaging can accentuate this liability. This type of exposure, although accidental, nevertheless qualifies as adulteration or exposure to conditions whereby these products may have become adulterated and therefore is subject to attention and action under the food and drug law.

These occurrences usually come to the attention of the division through news items, health authorities, police, insurance companies, and business firms. Food and drug inspectors are continually on the alert for such occurrences. All products so exposed are placed under blanket embargoes, then followed up with the process of segregation and classification, the safely salvageable ones being released, the questionable ones being sampled at times and analyzed for further determination, and the obviously unfit destroyed forthwith. Department inspectors supervise these types of disposals.

A total of 55 fires involving some 35 cities and towns came to the attention of the division during the biennium. The losses involved in each case are gotten from sources such as insurance and business firms. For the biennium, these losses totaled in round figures \$1,700,000.

CONTAMINATED FLOUR

In line with the long-time policy of cooperation with other agencies was the handling of flour, approximately 400,000 pounds, by the division. This flour, produced in North Carolina, under Federal contract, for use in the state's school lunch programs, was rejected because of contamination with insect fragments, apparently from the use of infested wheat. Since the flour was not moving in interstate commerce, it could have reverted to the North Carolina market. Upon Federal notice, it was embargoed and disposed of for industrial uses other than human food. Other rejects such as meats, butter, cheese products, and others are similarly handled.

LEAD POISONING

Of emergency character was lead poisoning which resulted from keeping fruit-type beverages in vessels (pitchers) made of pottery materials. These pitchers were among many designs of low-cost, novelty, decorative pottery designs imported from Mexico and retailed broadly through novelty stores. The lead salts used in the low-cost firing and glazing of this class of pottery was also soluble in foods, particularly those of acidic nature such as the fruit-type beverages. By state-wide emergency inspections, cooperating with the U. S. Food and Drug Administration, all stocks of these products were embargoed and withheld from sale until the public was fully alerted and further sales made only with full information and understanding to purchasers that the products were unfit for food use. Also, by federal provision, all future imports of these products, particularly items which were usable as food containers, were to be made with holes in the bottoms much as is done with flower pots, this to prevent use as food containers. Further trouble has not appeared.

PROTEIN SUPPLEMENT

Consumer complaints in two isolated instances were of finding partly lacerated lizards in canned, sliced pineapple. Two different brands were involved. Stocks in both instances were embargoed and many additional cans examined. All were found to be of good quality and nothing could be detected wrong

with them. The lizards which were in the complaint specimens, although a nauseous food idea, showed no decomposition; this indicating them to have been heated and sterilized along with the fruit and therefore enclosed with it at the original location of filling and processing. The facts that both brands were "Products of Tiawan (Formosa) The Republic of China", and that the lizards were of the gecko (Gekkonidae) family — small, harmless chiefly tropical and nocturnal insectivorous lizards, and that one of the lizards harbored an ingested but undigested fruit fly was suggestive of questionable conditions of preparation and processing; or, perhaps the processors may have found themselves shorted by inadvertent misplacement in the nowadays much publicized natural methods of insect control. Circumstances indicate the products to be foods which had been "... produced, prepared, packed or held under unsanitary conditions whereby it may have become contaminated with filth, ...". Cooperatively, the Department, the merchandising firms, the importers, and Federal authorities moved to intensify surveillance of these products, both as to source and as imports.

The several foregoing specific instances, given in some detail, are cited both for the specific concern they involve, and in example of detailed operations in the division's work. In all of these activities, as before indicated, cooperation with various other agencies concerned in such matters is regularly carried out. These include health departments, other law enforcement agencies, the North Carolina Board of Pharmacy, the U. S. Food and Drug Administration, and others.



Dr. E. W. Constable

This biennial report of the Chemistry Division was prepared by Dr. E. W. Constable, State Chemist throughout the biennium. He retired on June 30 after 26 years dedicated service in that capacity.

He maintains an office in the Agriculture Building, serving as a consultant to the Department.

CREDIT UNION DIVISION

W. V. DIDAWICK

Administrator



This division administers the laws and regulations governing state-chartered credit unions throughout the state. Subchapter III of Chapter 54 of the General Statutes places the responsibility for chartering, examining and supervising on this division, which operates entirely on fees paid to the state by the various credit unions. The law provides for the Commissioner of Agriculture to set a scale of fees based on a credit union's assets each year to cover expenses.

Credit unions serve to provide specific groups of people with a convenient place to accumulate their savings as well as a source of credit at a reasonable interest rate. Only about four percent of the adult population of North Carolina has access to credit union service, and we know that a majority of these people also deal with other financial institutions regularly.

However, credit union membership is made up of individuals in high income brackets as well as those in the low bracket, and each plays a part essential to the economic life of its community. Acceptance and custody of a depositor's funds impose a public trust and responsibility not generally associated with other business activities. Because of this public interest in depositor protection, credit unions are subjected to governmental supervision and regulation, including periodic surprise examinations by supervisory agency examiners.

As already indicated, the primary responsibility of the Credit Union Division is to protect the interest of depositors. The examinations conducted by this division, therefore, are directed to a determination of the credit union's solvency, the degree of competence of its management, and its compliance with the laws under which it operates.

While credit union laws provide broad examination powers, it is only in unusual circumstances that the supervisory examiners would extend the scope of their examination to what might even approach that of an audit made in accordance with generally accepted auditing standards. This is, of course, appropriate in view of the purposes of these examinations. The law provides that the supervisory committee of each credit union shall make, or have made, a thorough annual audit of its receipts, disbursements, income, assets and liabilities, including a verification of members' accounts.

Employee credit unions are growing in popularity. A recent Administrative Management Society survey shows that approximately 75 percent of industrial firms have a functioning credit union.

Why the popularity of an institution that, in some cases, requires an extra employee or two simply to keep it going? Reasons most often cited are that a company credit union helps keep employees from borrowing from high-interest money lenders; that it diminishes the amount of entanglements with bill collectors; and that it decreases the amount of company loans. A majority of the companies also indicate that their credit unions improve employee morale and employer-employee relations to a great extent, and 50 percent of the firms further state that the credit union is a factor in reducing employee turnover.

The over-all operation and financial condition of state-chartered credit unions remain good. They have been fortunate during the past biennium in being able to retain their working capital in spite of the high dividend rates advertised by other financial institutions. However, they are now faced with the problem of being able to keep their capital at work because of the increased number of credit cards in use which provide the customer with ready cash for most anything that he wants. These financial problems have been handled by credit unions in an excellent manner, as our statistical report shows a 40 percent increase in total assets, a 41 percent increase in shares, and a 43 percent increase in outstanding loans during this biennium. With the tight money situation and high interest rates, it is obvious that loans have been harder to obtain through most lending institutions. But persons who have the opportunity of credit union service have not felt this severe squeeze. They enjoy the privilege of making loans with little delay for provident purposes at a reasonable interest rate which has not changed.

Credit unions have also been able to pay a higher than average dividend rate on savings to their members.

The year 1969 brought three notable changes in credit union operation. The permissible increase in unsecured loans up to \$1,500.00, which was partially due to inflation and the decrease in the value of our dollar. The share guaranty insurance on accounts up to \$20,000.00 helped to establish confidence with the members. The Truth-in-Lending Act which brings everything out in the open as to the actual cost of borrowed money has been a help to credit unions and has been worth the extra time and trouble required to complete the disclosure form.

Credit unions are now being besieged by some large nationwide money brokers for their capital with a promise of a high return on their investment. Since credit unions are locally owned and locally operated we believe strongly that they should retain local control over their investments. Already a few of the brokerage investments are going bad while others appear to be successful.

NUMBER, MEMBERSHIP, AND ASSETS OF STATE-CHARTERED CREDIT UNIONS

	<i>June 30, 1968</i>	<i>June 30, 1970</i>
Active Credit Unions	216	216
Total Members	161,357	185,365
Total Assets	\$89,103,383.88	\$124,647,026.90

NORTH CAROLINA CREDIT UNIONS CONSOLIDATED BALANCE SHEET

Assets		
	<i>June 30, 1968</i>	<i>June 30, 1970</i>
Cash on Hand and in Banks	\$ 4,278,725.90	\$ 5,188,272.18
Loans to Members	70,436,822.38	100,816,336.31
Investments and Bonds	13,043,603.39	17,090,008.60
Other Assets	1,344,232.21	1,552,409.81
Totals	\$89,103,383.88	\$124,647,026.90
Liabilities		
Shares	\$75,291,298.01	\$106,390,763.92
Deposits	2,565,105.83	3,908,838.31
Reserves	4,593,299.04	6,193,558.54
Undivided Earnings & Surplus ..	4,078,472.01	4,473,806.50
Other Liabilities	2,575,208.99	3,680,059.63
Totals	\$89,103,383.88	\$124,647,026.90

DAIRY DIVISION

LEONARD F. BLANTON

Director



The production of milk ranks fourth as an agricultural enterprise in North Carolina. Milk is produced in 95 of the state's 100 counties by 4,366 herds. In 1969 Grade "A" milk was produced by 139,012 cows on 2,282 dairy farms and milk for manufacturing was produced by 17,945 cows on 2,084 farms. These dairy farmers have a total investment of over \$400,000,000 in land, cows, buildings, equipment and supplies. About 85 percent of this investment is for the production of Grade "A" milk. Their total cash farm income for milk in 1969 exceeded \$110,000,000.

The state's dairy plants added \$90,459,000 in value by processing and distribution, having total sales of over \$200,000,000. These plants employ about 5,500 persons and have payrolls of more than \$20,000,000 annually.

Currently, there are over 1,000 soft serve establishments serving the public frozen desserts. About half of these are milk shake dispenser freezer operations.

Milk is unique. Both a food and a beverage, it is a perishable liquid which becomes an easy prey for bacteria including disease organisms. Therefore, extensive precautions are taken throughout its production, processing, and distribution to guarantee that the consumer in North Carolina need not be concerned about contamination or impurity.

The Dairy Division is responsible for the enforcement of laws and regulations dealing with the production, processing, and distribution of dairy products. The major efforts of this enforcement program are directed toward consumer protection.

RELOCATION OF FIELD LABORATORIES

The three field laboratories have all been moved to new locations during the last two years. In July of 1968, the trailer laboratory was moved from the Piedmont Research Station near Salisbury to State Highway Department property in Winston-Salem. This location is nearer the concentration of work area for the dairy specialist headquartered there.

The laboratory formerly housed in a small step-van truck located at the Mountain Horticultural Crops Research Station near Fletcher, has now been moved into permanent quarters in the Western North Carolina Agricultural Center near the Asheville airport.

The bus laboratory formerly located at Rowan Dairy in Charlotte, has been moved to state-owned property on Wilkerson Boulevard in Charlotte. This move now places all three units on state-owned property.

MILKO-TESTER INSTALLATION

In November of 1969, the first milko-tester was put into service in North Carolina for testing the fat content of milk. This automated electronic unit was obtained through the efforts of the Dairy Commission of the Asheville Agricultural Development Council and is located in the North Carolina Department of Agriculture laboratory at the Western North Carolina Agricultural Center. The milko-tester is operated through a cooperative arrangement with the North Carolina Dairy Herd Improvement Association in order to provide a central testing laboratory for Dairy Herd Improvement Association members throughout much of the state. About 15,000 Dairy Herd Improvement Association samples are run each month, coming from 34 counties. A laboratory technician has been employed by the Dairy Division to carry out this program.

On June 1, 1970, the Board of Agriculture approved the milko-tester as an official method for testing milk as a basis for payment. Ten states have now approved its use and wide acceptance is expected. The method offers greater accuracy and repeatability than previous techniques as well as greater capacity and smaller cost per sample.

With the recent approval as an official method, it is now imperative that an instrument of this type be obtained for the central laboratory in Raleigh.

REVISION OF REGULATIONS

The study committee appointed by Commissioner Graham late in 1967 completed its work on regulations dealing with milk and milk products. All product definitions were rewritten and now closely conform to the United States Public Health Grade A Pasteurized Milk Ordinance. The Board of Agriculture approved these new regulations on November 25, 1968. Uniformity of these regulations has eliminated some of the conflicts between the Department of Agriculture's statewide regulations and those of the many local health departments throughout the state.

Future revisions may deal with frozen desserts and with milk of manufacturing grade. Movement of these products in interstate commerce requires a system of regulation that will be acceptable to regulatory agencies in other states.

PESTICIDES

Three dairy farms were required to withhold their milk from the market because of DDT residues. One small herd was dispersed. The other two herds — involving a total of about 300 cows — were readmitted to the market after periods of from 30 to 90 days as their residue levels were reduced to acceptable limits. These three dairymen lost more than 30,000 gallons of milk during this period.

With the combined efforts of North Carolina State University Experiment Station research personnel and dairy extension specialists, a decontamination feeding program was carried out in one herd. By feeding activated charcoal and phenobarbital, the rate of residue removal was accelerated and milk from these cows was acceptable earlier than that from the untreated cows.

ICE CREAM AND FROZEN DESSERTS

The number of retail frozen desserts manufacturers — soft-serve and milk shake dispenser operations — continues to increase each year. Currently, there are 1,000 of these establishments under supervision of the Dairy Division.

The rapid turnover in labor in these operations requires continuous training and guidance of personnel. A number of hearings have been held with owners and managers in order to bring about compliance with sanitary and quality standards where violations have occurred.

During the past biennium, 3,311 inspections have been made and 13,126 samples of frozen desserts have been analyzed as a part of this regulatory program.

1968-1970 Biennial Report

Butterfat check tests	47,611
Plant composite check tests	,2096
Plant investigations (Butterfat check testing)	485
Finished milk products analyzed	8,285
Ice cream and frozen dessert samples analyzed	13,126
Cryoscope determinations	1,902
Pesticide assays made	202
Milk testers' licenses issued in 1969	97
Milk testers' examinations given	33
Milk samplers' licenses issued in 1969	275
Milk samplers' examinations given	76
Plant laboratory inspections	148
Ice cream and dispenser milk shake machines inspected	3,311
Soft Serve and dispenser milk shake machines licensed in 1969	1,000
Ice cream plant inspections — wholesale	307
Ice cream wholesale plants licensed in 1969	70
Dispenser milk shake and soft serve operations closed for non-compliance	88
Gallons of milk embargoed, adulterated	30,938
Ice cream and mix embargoed which failed to meet Standards (gal.)	2,394
Milk testers placed on probation	0
Milk samplers placed on probation	0
Out-of-state shippers issued temporary permits to ship milk into N. C.	16
N. C. plants received milk from out-of-state sources	17
Butterfat tests changed	21

DIVISION OF ENTOMOLOGY

A. S. ELDER

Director



The Division of Entomology administers the State Plant Pest Law, the Vegetable Plant Law, and the Honey and Bee Law of North Carolina. These laws are designed to prevent the introduction and dissemination of plant pests into our state and to preserve the quality of our environment with respect to plant pests.

The division works in close co-operation with the U.S.D.A., Plant Protection Division, the U.S.D.A. Plant Quarantine Division, plant pest regulatory agencies of the other states, and other state agencies in performance of

the work. The work functions of the division are divided into five main types: (1) survey and detection of plant pests; (2) control; (3) regulatory; (4) inspections; and (5) collection, identification and diagnostic service. Our work by projects is as follows:

INSPECTION AND REGULATION OF PLANT AND PLANT PRODUCT MOVEMENT

The division enforces regulations designed to prevent the spread of plant pests by means of plant and plant product movement. The nurseries and plant dealers certified during the biennium are as follows:

	1968-69	1969-70
Nurseries	1,256	1,364
Dealers	698	596

The native plant inspections, treatments, and certifications are as follows:

	1968-69	1969-70
Number of native plants inspected	382,058	412,622
Number trailer loads inspected	244	267
Number truck loads inspected	934	2,299
Number of states involved	30	30

The cut flower European corn borer certifications made were as follows:

	1968-69	1969-70
Number dozen gladiolus inspected	491,414	886,284
Number states involved	28	28
Number acres cut flowers inspected	50	50

SURVEY - COLLECTION, IDENTIFICATION AND DIAGNOSTIC SERVICE

The Entomology Division has in its care one of the finest insect and arthropod collections in the nation. This collection is an invaluable reservoir of information on a large and important segment of North Carolina's natural history.

Number of specimens housed in collection	2,000,000
Number of N. C. species catalogued	18,000
Number identifications made for U. S.	
National Museum	3,684
Number identifications made for general public and other agencies	6,864
Number plant diseases diagnosed	675
Number weeds and plant specimens identified	350

Numerous surveys are made to keep a constant watch for new and introduced pests. Some 24 light trap collections were examined in cooperation with U.S.D.A. for foreign or serious pests. Several new insect species have been found and described by the curator and many scientific and informational articles have been published. About a dozen large industrial plants received insect service, among which was a large insulated wire firm and a food distribution complex.

HONEY AND BEE INDUSTRY

The honey and bee industry is becoming increasingly important to our economy. The importance of bees for pollination became apparent during this biennium. Blueberry, cucumber, and apple growers are renting bees for pollination in increasing numbers.

Our apiary inspection service is responsible for promoting the honey and bee industry in the state, especially relating to diseases of bees. The incidence of American foulbrood disease is the lowest in the history of the state. Beekeepers in some areas in western North Carolina are having increased winter losses due to dysentary.

The number of honeybee colonies in North Carolina increased 10% to 226,000 during the last biennium. There has also been a corresponding increase in commercial beekeepers.

EXPORT AND IMPORT INSPECTIONS

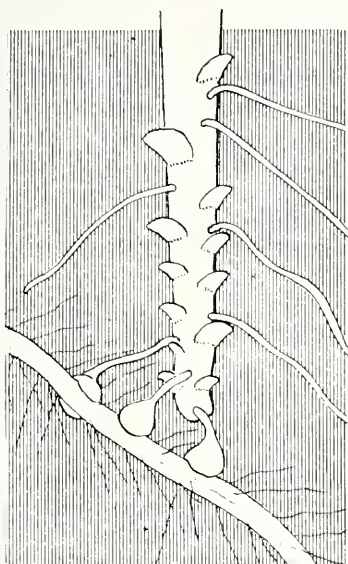
International phytosanitary certificates were issued for the export of various commodities to foreign countries, such as 500,000 pounds of peanut seed, 10 carloads wood dowels, 23,940 lemons, 250 shipments of nursery stock, 100 hogsheads of tobacco, 1,000 pounds pine seed, carload oak logs, plant bulbs and rhizomes, tobacco seed, cucumber seed, cotton seed, corn seed, sweet potatoes, cantaloupes, and crabgrass.

Import permits were granted to import insects, fungi, soil, etc. for scientific purposes. Imported nursery stock was kept under a 2 year postentry quarantine. Our inspectors cooperated with U.S.D.A. port inspectors in inspecting imported materials for pests such as khapra beetle, Formosan termite, and snail species.

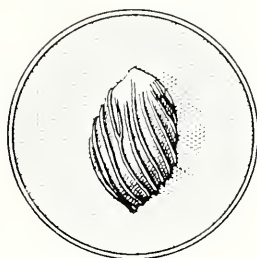
WITCHWEED

(*Striga lutea* Lour.)

The witchweed control and eradication program, begun in 1956 in cooperation with the U.S.D.A., Plant Protection Division, was continued. In 1969 a statistically designed survey procedure was utilized. As a result of this survey a new county (Wilson) was added to the list of infested counties. A total of 287,268 acres on 11,030 farms in North Carolina and in some 25 counties have been found infested with witchweed since its discovery in 1956.



The witchweed attaches itself to the host plant under the soil.



This small area of North and South Carolina contains the only infestation of Witchweed in the United States.

This program is one of our most important and successful programs. There has been no long distance spread of witchweed, federal regulations are being lifted from three counties after fumigation has apparently eradicated the pest, and program personnel are becoming increasingly efficient in its control. The discovery during the biennium of the stimulating effect of ethylene on witchweed seed germination is another step toward the goal of witchweed eradication. Some of the witchweed work accomplished is as follows:

	1968-69	1969-70
Acres surveyed	3,654	2,982
Acres fumigated	36	130
Acres herbicided (aggregate) ..	422,470	372,170

IMPORTED FIRE ANT
(*Solenopsis saevissima richteri* Forel)



The imported fire ant has made gains in North Carolina. In 1968 the pest moved across the South Carolina line into Brunswick and Columbus counties. In 1969, for the first time since the introduction of the fire ant, we were unable to treat and kill all known mounds in North Carolina. On October 16, 1969, an imported fire ant quarantine was placed on portions of Brunswick, Carteret, Columbus, and Craven counties. The pest has since been found in Jones County. Some of the imported fire ant work accomplished is as follows:

	1968-69	1969-70
Acres surveyed (Detection)	102,270	4,204
Acres surveyed (Delimiting)	1,716,535	808,288
Acres treated with mirex bait ..	75,420	60,318

WHITE-FRINGED BEETLE
(*Graphognathus spp.*)

Our white-fringed beetle quarantine was revised on March 3, 1969. The entire counties of Anson, Stanly, and Union are under regulation along with portions of 15 other counties. We have greatly curtailed the use of dieldrin in our control programs and use it only when no other substitute is available in our regulatory program. Special care is taken to protect streams and wildlife. Some of the white-fringed beetle work accomplished is as follows:

	1968-69	1969-70
Acres surveyed	31,595	31,696
Acres found infested	3,530	15,551
Acres treated with pesticide	384	277
Inspections made	4,258	2,655



This cornfield shows the extensive damage which the white-fringed beetle can cause.

SOYBEAN CYST NEMATODE
(*Heterodera glycines* Ichinohe)

Our soybean cyst nematode quarantine was revised on March 3, 1969. A total of twenty-two counties in eastern North Carolina are regulated for this pest. During the biennium the resistance to this nematode began to break down in our resistant soybean varieties, thus making our regulatory program of more import-

ance in protecting the soybean industry from this pest. Some of the soybean cyst nematode work accomplished is as follows:

	1968-69	1969-70
Acres surveyed	27,014	138,064
Soil samples collected	3,225	1,677
Soil samples examined	5,912	1,993
Acres found infested	5,999	15,323
Properties infested	77	76

OTHER NEMATODES

Narcissus eelworm (*Ditylenchus dipsaci* Kühn) inspections and certifications were continued with four properties in each year of the biennium being inspected and certified as to freedom from this pest. We increased our golden nematode detection efforts during the biennium and did the following work in cooperation with the U.S.D.A., Plant Protection Division:

	1968-69	1969-70
Grader and soil samples collected	261	372
Grader and soil samples examined	158	375
Acres surveyed		686

PEANUT STUNT VIRUS

Since 1966 the states of Alabama, Florida, Georgia, and Oklahoma have had quarantines on North Carolina peanut seed because of this virus. During the biennium we inspected the peanut fields and environs of those growers who desired certification of their seed for export purposes. We continued our surveillance of this disease during the biennium. It is fairly widespread in peanuts but has caused no major general crop loss. It is causing some losses in beans in our mountain areas. We continued our efforts to learn more about this disease and supply data to those states having quarantines against our seed. We hope to eventually work out procedures where our peanut seed can again be shipped to the states having quarantines.

CEREAL LEAF BEETLE

(*Oulema melanopa* (L.))

The cereal leaf beetle, a pest of grain, is rapidly moving toward North Carolina by natural means. Our work on this pest is limited to survey around riding stables, dairies, and areas where hay has been brought in from infested states.

JAPANESE BEETLE
(*Popillia japonica* Newm.)



The entire state is infested with Japanese beetle. The U.S.D.A., Plant Protection Division, has a Japanese beetle quarantine on our state, and we cooperate in helping our citizens get their products certifiable for shipment into Japanese beetle free areas of the United States. Some of the work done is as follows:

	1968-69	1969-70
Number truck loads beans inspected	455	449
Number truck loads cabbage inspected	255	235
Number truck loads cabbage fumigated ..	175	185
Number inspections made	2,122	2,210
Number commodity, soil or foilage treatments	1,735	1,452
Acres receiving biological control treatments		210

VEGETABLE PLANT INSPECTION

The vegetable plant law is designed to insure that our growers who import vegetable plants from other states get healthy, disease and pest free plants. Some 10,441,850 in 1968-69 and 7,344,500 in 1969-70 vegetable plants were inspected and checked for proper certification from other states during the biennium. On January 27, 1970, the Board of Agriculture adopted regulations designed to prevent the importation of potato virus Y into North Carolina on tomato plants from southern Florida. This virus causes a veinbanding disease on tobacco. To date, these regulations appear to be very effective as no PVY infected tobacco fields have been reported this season.



Roots of a tomato plant showing the root-knot nematode. The swellings may contain hundreds of these parasites.

TRANSIT INSPECTION

In this program our division coordinates with the U.S.D.A., Plant Protection Division, and other state regulatory agencies in an effort to maintain surveillance on movement of regulated plants and products from origin to destination in order to prevent the spread of pests.

	1968-69	1969-70
Transit inspections made	1,937	1,092

SWEET POTATO WEEVIL

(Cylas formicarius elegontulus Sum.)

The sweet potato weevil eradication program has been reasonably successful with only small infestations being found on stored potatoes in Tabor City and Whiteville during the biennium. No active field infestations were found in North Carolina during the biennium. The warehouse infestations have been destroyed. Intensive surveys were made at time of seed bedding, in old beds, and on processing lines in all of the major sweet potato areas in North Carolina. We are hopeful that this pest can be eradicated from North Carolina.

FOREST AND SHADE TREE PESTS

The movement of currant and gooseberry plants into our white pine area was prevented during the biennium in order to protect the white pine from the white pine blister rust disease. Currants and gooseberries are alternate hosts of this disease and should not be grown near white pine plantings.

The gypsy moth, a serious pest of hardwoods, has moved closer to North Carolina with infestations being found in Virginia. Close inspections for gypsy moth egg masses were made of Christmas trees, camper trailers, etc. that were brought into North Carolina from the gypsy moth areas in Connecticut, Delaware, New Jersey, New York, New Hampshire, Maine, and Pennsylvania. Sex lure traps were placed at likely sources of infestations such as campsites.



George D. Jones

During the biennium the post of State Entomologist was held by George D. Jones. He served in that capacity from 1965 until his retirement on July 1, 1970.

The report of this division on the preceding pages was prepared by Mr. Jones.

FARMERS MARKET

CHARLES G. MURRAY

Market Manager



The Market renders outstanding services to producers, wholesalers, grocerymen, and consumers. It is the focal point for fresh fruits, vegetables, and many specialty items. It is the largest such market between Baltimore, Maryland and Columbia, South Carolina.

The Market is of particular importance to the thousands of smaller growers who do not produce in sufficient volume to justify modern grading and packing facilities for shipments to distant markets in truck or car lots. On a typical busy day from June to September as many

as 200 or more vehicles deliver fresh produce to the market amounting to 15,000 to 20,000 packages per day.

During the early part of 1970 a large wholesale grocer began operating on the Market. This makes a rather complete market where more than 1,000 items can be purchased. Just about any item a grocery store needs can be found on the Market. Also, nursery, lawn, and garden supplies are available.

Grocery store operators and small wholesale establishments within 150 miles of Raleigh are served by the Market each month of the year. The fourteen wholesale firms operating forty-three units on the Market carry a complete line of fresh fruits, vegetables, melons, nuts and many specialty items year round. In addition to the produce grown in the United States, local wholesalers import many items from Canada, Mexico, South America and Central America. Without these services by our wholesalers, the retail grocery stores would not be able to supply the consuming public with fresh produce each month of the year.

Thousands of local consumers who desire farm fresh produce to can, freeze or use fresh, visit the Market annually during June to September and buy direct from the farmers. During a busy



The fresh produce in this shed at the State Farmers Market is a service to producers and consumers.

hour more than 250 cars and 25 pick-up trucks enter the market, mostly for purchasing fresh produce for home use or resale.

Through the efforts of the Market Manager, the wholesale dealers and other interested persons, the New York office of the Defense Supply Agency stationed a buyer on the Market to purchase fresh food products for Military installations in the area from North Carolina to New England. This action has proven most beneficial to producers in Eastern North Carolina and produce dealers at the Market.

The Market office releases a bi-weekly NEWSLETTER to wholesalers and independent retailers within a radius of 100 miles of Raleigh. The purpose is to give buyers and prospective buyers up-to-date information relating to current available supplies and supplies anticipated for the immediate future. This has proven helpful in promoting and moving North Carolina fruits and vegetables. Also, a leaflet was prepared for distribution to farmers selling on the Market. The leaflet gives comments and suggestions to farmers selling on the Market. Special emphasis is placed on grading, sorting, and handling to preserve freshness, flavor, and quality. The theme is FARM FRESH FOR FLAVOR.

The Market Manager has a radio program each Monday, Wednesday, and Friday morning and a TV program daily Monday through Friday giving general market conditions and price information.

A few years ago many thought that the Market had reached its potential. Just the opposite has been the case. The volume of business continues to grow and expansion is badly needed. We have requests for additional wholesale units. Parking space for buyers and personnel working on the Market is a serious problem. We believe the Market will continue to grow in proportion to the population expansion.

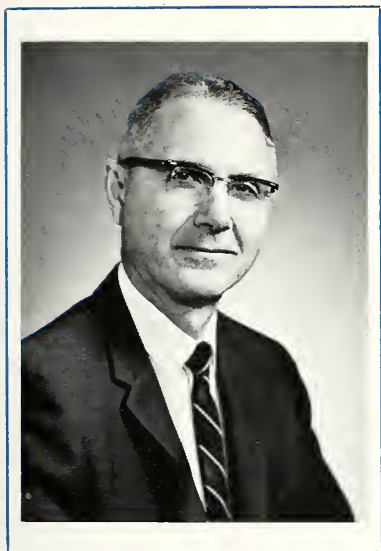


Many farmers find buyers for their produce right from the back of their trucks at the farmers market.

FOOD DISTRIBUTION DIVISION

JAY P. DAVIS

Director



The quantity and value of food products distributed by this division reached a new high during the biennium. The wholesale value of the 206.4 million pounds of food distributed was over 67 million dollars. On the following page is a chart showing the value of donated commodities during the last ten years. The number of persons in the state benefiting from the use of donated commodities also increased to 1,226,116 persons.

The Food Distribution Division, in cooperation with the United States Department of Agriculture, administers the

Commodity Distribution Program in this state, and it is through this program that foods are received for distribution to eligible groups within the state. The division has the responsibility for requisitioning, storing, transporting, and distributing commodities to all eligible groups in the state. Eligible groups include school lunchrooms, serving meals to children of high school grade or under; charitable institutions, such as state mental hospitals, correctional and rehabilitation institutions, sanatoriums, orphanages, non-profit day care centers; summer camps for boys and girls; and needy families.

Foods distributed under the program are acquired by the U. S. Department of Agriculture under its price-support, surplus removal program, school lunch, and other food supply programs. In recent years, emphasis has shifted from the price-support aspect of the program to that of supplying foods to help meet the nutritional requirements of eligible groups.

Within the framework of applicable federal legislation and regulations, this division develops and implements policies, procedures, and regulations governing the operation of the program within the state.

Groups Eligible To Receive USDA Donated Foods — In the following paragraphs we are giving a brief explanation of the group of eligible recipients and the plan of operation which we use to supply food to each group.

School Lunchrooms — The Commodity Distribution Program is a very important component of the National School Lunch Program, under which nutritious meals are made available to students at a nominal cost. The 26.6 million dollars' worth of commodities distributed to lunchrooms during the biennium furnished approximately one-fourth of the total food requirement of the lunchrooms, thus enabling them to serve well-balanced meals to children at a cost of 35-40 cents, which is only a fraction of the value of the lunch. Federal, state, and local funds make up almost fifty percent of the cost of the lunch — with the 35-40 cents paid by the child making up the difference. The contribution of donated foods to lunchrooms also assist the lunchrooms financially so that free and reduced priced meals can be served to those children whose families are economically unable to pay the full lunch charge. Schools participating in the National School Lunch Program are required to serve lunches that consist of a minimum of two ounces of meat or protein substitute, three-fourth cup of vegetables or fruit and vegetables, one-half pint of whole milk, bread and butter or fortified margarine. The lunchrooms, of course, must buy approximately three-fourths of their total requirement of food locally, and these purchases represent a very considerable market for our local farmers, processors, and businesses. During the past year, lunchrooms purchased locally approximately 41 million dollars' worth of food.

Charitable Institutions — Donated commodities are made available to charitable institutions to enable them to improve the quality of meals served to patients and residents. The finan-

cial value of the commodities also assists in the cost of meals for the patients who are unable to pay the charge for services provided. Recipient institutions are required to maintain the normal expenditures for food and to use the donated commodities so as to improve the meals rather than substituting commodities for foods normally purchased.

Child Care and Development Centers — Increased emphasis has been given to providing nutritious food for such facilities as head start programs and child care centers. The variety and quantity of foods available for use in such institutions has increased and our division has made a special effort to assure that such foods are made available to such centers. Storage and transportation is a problem with such centers since many of them are relatively small, serving between 20 and 50 children. Child Care Centers which serve children of low-income families and of working mothers are eligible to participate in the program. Other centers which serve some or all of the children free or at a nominal charge are also eligible.

Summer Camps — During the summer months, we provided USDA donated commodities to summer camps for boys and girls to help assure nutritious, adequate meals. Such camps, to be eligible, must be operated on a non-profit basis and serving children of high school grade and under. Eligible camps include the FFA camps, 4-H camps, camps operated by church and civic groups, boy scout and girl scout camps, and other non-profit groups. Camps operate over varying periods of time, extending from one or two weeks to the entire three months of summer.

Needy Families — During the past several years, and particularly during the 68-70 biennium, there has been a tremendous increase in emphasis on the foods supplied to meet the nutritional requirements of low-income families. The number and variety of commodities has more than doubled, with the latest retail value of commodities reaching approximately \$17.00 per person per month. This compares with a retail value of \$6.00 per person per month for commodities which were being distributed ten years earlier. The 24 different commodities being distributed

during the biennium will, if properly used, furnish almost 100 percent of the daily nutritional requirements of a family. It is, of course, advisable that the family supplement the commodities received with such items as fresh vegetables and fresh meats, either grown or purchased by the family. The phase of the program dealing with needy families is administered in cooperation with the boards of county commissioners in each county. The county social services departments have agreed to receive applications and determine eligibility of the families applying for participation in the food program. At the close of the biennium, all one hundred counties in North Carolina were either operating or making plans to begin a food program for needy families.

Under the Commodity Distribution Handbook, issued by the Food Distribution Division, the county departments of social services use the following criteria in determining eligibility of families:

- (1) Families are eligible if they are receiving Public Assistance Payments under one of the following Social Security categories:

- a. Old Age Assistance
- b. Aid to Families With Dependent Children
- c. Aid to the Permanently and Totally Disabled
- d. Aid to the Blind

- (2) Other needy families are eligible if they have income of of less than the following amounts:

Family of one person	\$115.00
Family of two persons	155.00
Family of three persons	180.00
Etc.	

The second group listed above includes many low-income families such as seasonal farm workers, part-time laborers, day laborers, and other persons engaged in low-paying or part-time work.

Supplemental Food Program — During the biennium, a new phase of the Food Distribution Program was begun. The initial development work for a national program was carried out here in North Carolina by this division in cooperation with USDA personnel, with Guilford County being the original pilot county.

Under this program an effort is made to improve the nutrition of high-risk groups. These groups are defined as: Expectant and nursing mothers and Infants. Special allocations of high protein foods are provided. This program is operated with the cooperation of the county departments of health. The county health departments may certify for the supplemental foods any mothers or infants whom they find to be in need of additional food for medical or health reasons. No family income requirement is used other than that health departments may certify only those families whom they would certify for other county health department services. This program is an effort to improve the physical and mental development of the child during early stages of life. Medical science has recently shown that a good supply of food, especially protein-rich foods, is essential if the body, particularly the brain of a child, is to develop normally. At the end of June 1970, 29 counties were participating in the program with applications from other counties being processed.

Disaster and Emergency Feeding — The Food Distribution Division has a major responsibility for providing food during disasters resulting from flood, fire, freeze, earthquake, tornado, hurricane, landslide, explosion, or other causes. Victims of such disasters have first priority in the use of USDA donated foods. Our division makes every effort to meet their food needs promptly. The food which we have available in school lunchrooms, institutions, and state warehouses is available for use in emergencies, also the facilities of school lunchrooms and other cooperating agencies to be able to prepare and serve the meals to disaster victims. During the biennium, no major scale disasters have occurred which have necessitated disaster and emergency feeding. If such disasters do occur in the future, we have the plan and means to provide food needs during such emergencies.

Transportation and Warehousing — During the biennium, a state warehouse was leased in the Asheville area. This warehouse, combined with the facilities which the department leases and operates at Salisbury and Butner, gives a minimum amount of storage for the program. The majority of the commodities which are distributed to schools are shipped from the processing plant or government storage directly to strategic points through-

out the state. From these points, distribution is made from the freight car door or truck to recipient agencies. Each school unit provides a truck for hauling the commodities from the unloading point to the school storages. The three state warehouses are utilized chiefly for receiving, storing, and re-shipping commodities to the county distribution centers which serve needy families and all of the institutions, except for a few very large ones. It appears to be essential that we expand our state warehouse facilities so that we might receive, store, and distribute a major portion of the commodities which are distributed to schools. Currently, only emergency shipments of food are supplied from the state warehouses to school units. The regular shipments which are made on a quarterly or annual basis move directly to the schools from the vendor or government storage.

Financing — Cost of the program is borne jointly by federal, state, and county governments. The donated commodities are made available to the state without charge. The storage, transportation, and distribution within the state, however, is borne chiefly by the state and county agencies. State funds pay for the rent and operation of the state warehouses and for the transportation of commodities from the state warehouses to county distribution centers. State funds are also distributed to counties to pay approximately one-half of the cost of storing and distributing of food to needy families at the county level. Within the last year of the biennium, federal funds have been made available to the state to improve and expand the distribution of commodities to needy families.

Statistical Summary — Information regarding value of commodities received in the state and the quantity distributed to each county is given in the following summary. This information is given in answer to many inquiries received from various individuals in the state as well as from members of Congress.

SUMMARY OF USDA DONATED COMMODITIES DISTRIBUTED
1968-70 BIENNium

<i>Recipient Agency</i>	<i>No. of Agencies</i>		<i>No. of Persons Served</i>		<i>Commodities Distributed</i>	
	1968-69	1969-70	1968-69	1969-70	Quantity (lbs.)	Value **
Schools Head Start	2,133 412	2,043 348	946,394 26,670	876,980 20,084	*** 88,300,248	\$26,601,780.
Institutions	200	226	26,882	36,920	4,802,862	1,098,238.
Summer Camps	105	111	52,705	47,038	395,056	100,538.
Needy Families—Including Supplemental Food Program	65	64	173,515*	171,974*	112,929,869	39,500,082.
Totals	2,915	2,792	1,226,166	1,152,996	206,428,035	67,300,638.

*Participation Figures are for February 1969 and February 1970.

**Wholesale Except For Needy Families Where Retail Value Is Used.

***Includes Schools and Head Start.

VALUE OF USDA DONATED COMMODITIES DISTRIBUTED

1968-70 BIENNIUM

<i>County</i>	<i>Schools</i>	<i>*Charitable Institutions</i>	<i>**Needy Families</i>	<i>Total</i>
Alamance	\$ 509,800	\$ 7,820	\$ 63,504	\$ 581,124
Alexander	79,731	—	185,471	265,202
Alleghany	53,177	3,016	180,280	236,473
Anson	151,803	317	—	152,120
Ashe	130,058	212	337,874	468,144
Avery	81,767	5,352	390,771	477,890
Beaufort	227,108	5,453	571,745	804,306
Bertie	119,799	1,093	—	120,892
Bladen	189,929	2,903	—	192,832
Brunswick	114,385	337	—	114,722
Buncombe	752,283	54,030	1,393,696	2,200,009
Burke	326,256	139,863	214,517	680,636
Cabarrus	456,687	18,645	—	475,332
Caldwell	339,993	3,753	273,645	617,391
Camden	33,578	—	198,840	232,418
Carteret	162,372	1,318	274,771	438,461
Caswell	125,275	—	429,812	555,087
Catawba	540,268	1,465	—	541,733
Chatham	189,492	2,038	—	191,530
Cherokee	85,943	174	327,824	413,941
Chowan	75,183	—	9,465	84,648
Clay	33,243	306	190,016	223,565
Cleveland	448,513	1,116	—	449,629
Columbus	354,287	13,675	422,116	790,078
Craven	258,152	2,971	1,136,277	1,397,400
Cumberland	1,058,762	9,416	2,006,147	3,074,325
Currituck	37,719	331	130,052	168,102
Dare	30,684	2,521	—	33,205
Davidson	542,239	6,476	363,829	912,544
Davie	117,630	—	22,873	140,503
Duplin	296,492	5,964	755,107	1,057,563
Durham	656,573	27,140	—	683,713
Edgecombe	297,483	—	1,380,965	1,678,448
Forsyth	659,645	34,065	—	693,710
Franklin	129,086	59	—	129,145
Gaston	804,376	7,971	1,046,115	1,858,462

*Includes Summer Camps and Child Development Centers

**Includes Supplemental Food Program

REPORT FOR 1968-1970—FOOD DISTRIBUTION

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Gates	65,166	—	270,247	335,413
Graham	35,251	—	144,912	180,163
Granville	202,983	129,877	—	332,860
Greene	102,967	1,092	—	104,059
Guilford	1,011,276	34,202	2,122,429	3,167,907
Halifax	357,878	—	53,051	410,929
Harnett	295,202	749	—	295,951
Haywood	255,373	3,025	760,601	1,018,999
Henderson	218,952	11,739	340,641	571,332
Hertford	128,940	113	1,050,754	1,179,807
Hoke	124,148	37,306	555,123	716,577
Hyde	27,159	798	379,607	407,564
Iredell	397,010	4,676	—	401,686
Jackson	104,406	—	333,368	437,774
Johnston	393,443	4,747	841,475	1,239,665
Jones	79,229	—	551,215	630,444
Lee	179,954	587	—	180,541
Lenoir	347,359	104,146	681,126	1,132,631
Lincoln	192,415	284	—	192,699
Macon	122,915	1,730	233,893	358,538
Madison	79,568	—	654,949	734,517
Martin	169,228	7,416	—	176,644
McDowell	171,172	2,884	33,223	207,279
Mecklenburg	1,264,812	34,967	3,697,976	4,997,755
Mitchell	85,737	226	562,595	648,558
Montgomery	132,720	—	184,911	317,631
Moore	217,003	23,139	—	240,142
Nash	369,665	15,586	—	385,251
New Hanover	276,170	2,608	—	278,778
Northampton	173,776	—	14,055	187,831
Onslow	331,111	2,750	673,607	1,007,468
Orange	242,041	19,790	27,133	288,964
Pamlico	53,750	2,370	185,307	241,427
Pasquotank	112,885	—	423,075	535,960
Pender	121,451	967	384,486	506,904
Perquimans	47,205	—	299,492	346,697
Person	170,042	—	—	170,042
Pitt	371,970	1,873	439,873	813,716
Polk	59,273	806	—	60,079

*Includes Summer Camps and Child Development Centers

**Includes Supplemental Food Program

Randolph	405,962	—	—	405,962
Richmond	220,760	31,215	49,447	301,422
Robeson	647,048	6,279	428,557	1,081,884
Rockingham	398,400	2,544	54,947	455,891
Rowan	453,014	4,167	484,693	941,874
Rutherford	292,003	4,359	362,958	659,320
Sampson	334,426	2,119	933,705	1,270,250
Scotland	174,692	9,223	—	183,915
Stanly	253,577	1,665	—	255,242
Stokes	128,776	4,993	263,365	397,134
Surry	325,366	934	—	326,300
Swain	40,233	522	280,252	321,007
Transylvania	97,637	2,640	135,278	235,555
Tyrrell	27,791	720	308,540	337,051
Union	313,101	1,457	—	314,558
Vance	193,765	3,985	812,292	1,010,042
Wake	1,037,179	137,884	2,520,554	3,695,617
Warren	134,984	—	—	134,984
Washington	98,943	—	558,144	657,087
Watauga	104,187	3,016	363,520	470,723
Wayne	536,807	218,072	1,417,599	2,172,478
Wilkes	278,834	1,107	660,267	940,208
Wilson	288,995	12,841	1,121,223	1,423,059
Yadkin	140,589	—	164,003	304,592
Yancey	72,762	398	354,858	428,018
TOTALS	\$26,561,207	\$1,260,393	\$39,479,038	\$67,300,638

*Includes Summer Comps and Child Development Centers

**Includes Supplemental Food Program

DIVISION OF MARKETS

CURTIS F. TARLETON

Director

The Division of Markets has two primary areas of responsibility: (1) Market Development, (2) Grading and Regulatory.

In the area of Market Development, we strive to provide needed technical assistance to individual producers, handlers, processors, wholesalers, and retailers to aid them in doing a more efficient job of marketing the products they have for sale. This includes such things as advising on seed selection, purchasing desirable breeding stock, providing current market information, proper sorting and packaging of products, securing buyers, assisting in facility planning and layouts, transportation, storage and merchandising.

Much of this work is carried out in the form of direct assistance by a staff of trained and experienced commodity specialists. As a means of reaching as many as possible, however, we rely heavily on the use of mass communication media to call attention to new and improved marketing techniques and practices and to promote their use throughout the state's agricultural industry.

The grading work involves determining and designating, according to established standards, the official grades of farm products offered for sale. This service is conducted on fruits, vegetables, peanuts, grain, hay, livestock, poultry, eggs and red meats. It operates on a self-sustaining basis from fees collected as the service is rendered. An increasing number of buyers and sellers are subscribing to the grading service as they find it to be one of the most valuable and economical tools available to them.



Regulatory responsibilities of the division include administering five state laws, namely: N. C. Egg Law, Handlers Act, Seed Potato Law, Cooperative Act, and Farm Products Labeling Law. Each of these laws is an aid to increasing the efficiency of the overall agricultural marketing system and, therefore, helps to make the variety of service work more effective.

Generally speaking, we were adequately staffed during the biennium to render the variety of marketing services requested. To do this, however, it was necessary to expand our work in at least two areas of endeavor and realign the duties of specialists to provide the service. For example, we assigned one specialist to full-time work on foreign trade development. The need for this became apparent early in the biennium following a noticeable increase in interest on the part of numerous individuals and firms throughout the state late in the 1966-68 biennium. Numerous contacts of a promising nature have been made in developing foreign sales and the response from industry people has been most encouraging. Several significant sales have been made to foreign buyers as a result of this work and future sales are being vigorously pursued.

We also expanded our work with the swine industry by assigning an additional specialist to full-time duties with this enterprise. The expansion of graded feeder pig sales and market hog sales on a grade basis made this move necessary.

While we were adequately staffed to carry on our service work, we were faced with a lack of personnel in some areas of our regulatory work. This was particularly true in enforcement of the N. C. Egg Law. Presently there are five marketing specialists and one supervisor to enforce this law. To adequately enforce it, each retail establishment in the state that sells eggs should be visited at least three times each year. Yet, with our limited manpower, it is not possible to get to more than approximately one-half of these establishments each year. It is because of this need for adequate enforcement that we are requesting two additional specialists.

A summary of the division's activities during 1968-70 follows:

LIVESTOCK (Market Development)

Livestock and livestock products have become one of the major sources of farm income in North Carolina as an increasing number of farmers turn to this enterprise as a means of in-

creasing their income both in part-time and full-time farm operations.

North Carolina now ranks ninth in pork production and is becoming more important each year in the production of feeder cattle. The demand for our feeders is becoming almost nationwide, but we are still not an important cattle feeding state.

The market service work is aimed at assisting all people involved in marketing livestock and livestock products. For producers, this means buying or selling by private treaty or collectively in special pools or sales. For the livestock auction market, it means planning sales, consigning livestock, grading and grouping for sales, contacting buyers and assisting with sales. For packers and producers, it means procurement of livestock for slaughter.

During this biennium swine marketing has taken on a whole new perspective. Feeder pigs, for example, now are sold to feed-lot operators in the northeast, without the buyer's appraisal before they arrive. This is done through the means of the telephone auction, and a respect for the grades applied by North Carolina Department of Agriculture livestock specialists. In 1968-70, graded quality feeder pig sales were held at seven locations on 264 days with 320,442 pigs moving to feed-lots in eight states. This accounted for over \$8 million farm income. The effect of the graded sales can be multiplied many times because the prices received there influence the prices farmers receive for pigs sold on their farms.

GRADED QUALITY SALES

<i>Place of Sale</i>	<i>Total Head Marketed During Biennium</i>
Hillsborough	53,356
Greensboro	64,728
Fayetteville	63,991
Wallace, Chadbourn	68,027
Norwood	21,349
Statesville	42,928
Rich Square	6,063
Total	320,442

NON-GRADED QUALITY SALES

Rocky Mount	156,338
Dunn	108,521
Total	<hr/> 264,859

GRADED MARKET HOG SALES

<i>Place of Sale</i>	<i>No. of Sales</i>	<i>No of Head</i>
Greenville	55	15,562
Swan Quarter	9	2,090
Monroe	8	2,052
Total	<hr/> 72	<hr/> 19,704

Quality, non-graded, sales are held each week at Rocky Mount and Dunn. The first of these quality sales was held about twelve years ago at Rocky Mount. Since that time both the graded and non-graded sales have shown phenomenal growth.

Since June 1969, swine marketing specialists have assisted farmers in marketing 19,704 market hogs on a grade basis. This method of marketing was established through the cooperation of the North Carolina Farm Bureau. The Greenville market has operated for one year with over 14,000 hogs being graded and sold. Since March, two other sales have been established in other parts of the state. These sales have amounted to over \$1 million to North Carolina swine producers. Grading is proving to be a necessary tool for the improvement of hogs throughout this state.

Swine marketing specialists served as official judges for 15 North Carolina Junior Livestock Shows in 1969 and 1970, and assisted at 7 other junior shows. Nine Junior Livestock Judging Contests were conducted for 4-H and F.F.A. members. The efforts being spent at these shows are aimed at improving market hogs and developing swine producers for tomorrow.

The North Carolina Graded Feeder Pig Marketing Association has served as a clearing house for buyers, coordinated sale dates, and maintained a pool of buyers and haulers of feeder pigs.

The swine specialists have worked in conjunction with the North Carolina Pork Producers' Association to promote pure-

bred sales, feeder pig sales, market hog shows and carcass events. Joint demonstrations have been held to show consumers and producers the correlation between live hogs and pork cuts.

Through the efforts of North Carolina Department of Agriculture specialists, the market for breeding stock has been expanded beyond the boundaries of our country. Several North Carolina produced hogs have found their way to homes in Cyprus, with other export orders in the making for other countries abroad.

More than 300 farmers were assisted in purchasing herd boars and replacement gilts in an effort to improve the quality of pigs and hogs being marketed in North Carolina. Purebred breeders were assisted in holding 24 private sales, nine state sales, two all-breed sales and two national type conference sales.

Events such as swine shows, fairs, grading demonstrations, conferences, tours, field days, and other educational meetings were conducted by or participated in by marketing specialists. Efforts have been concentrated on improving quality and expanding markets for North Carolina grown pigs and pork.

There is a continuing increase in feeder calf production and in the demand for our feeder calves and feeder cattle, both yearling steers and spring stockers, over a much wider area of the country.

During the biennium, our specialists, in cooperation with the N. C. Cattlemen's Association, Extension livestock specialists, and the North Carolina Feeder Cattle Committee, scheduled 79 special feeder cattle sales, selling 85,507 head of feeder calves, yearling steers and spring stocker cattle for \$13,956,443.96.

<i>Kind of Sale</i>	<i>No. of Sales</i>	<i>No. of Head</i>	<i>Total Dollars</i>
Feeder Calf	42	44,608	\$ 5,819,794.70
Yearling Steers	22	27,577	5,858,363.89
Spring Stockers	15	13,322	2,278,285.37
<hr/>			
Total	79	85,507	\$13,956,443.96

As a comparison, the feeder calf sale summary in 1961-62 looked like this: 23,326 head sold for a total of \$2,813,751.49, almost double in numbers and more than double in dollars. Yet, 1969 is the first year since the sales started that the numbers

did not increase. Prices were good and more contracting or direct sales were made than usual. The volume in state graded sales has attracted buyers from midwestern, northeastern and southeastern points of the United States, and they have done some country buying to their advantage rather than the producers' advantage. This tends to happen on a rising market, but 1969 is the only year this has occurred.

Specialists assisted livestock markets with nine graded sales during the biennium that were not included in the special state-sponsored sales, selling over 6,000 cattle. Over 26,400 cattle were inspected on farms and producers were advised as to how and when to market. Feeders were helped in selling 1,765 fat cattle direct to packing plants. More cattle feeders are shifting to grain on grass finishing and silage to reduce feed costs.

During the biennium, specialists assisted with 56 purebred cattle sales, grading, judging etc., but more important, helping producers pick breeding stock, bulls and females, to help improve the quality of our commercial cattle. The production of quality feeder cattle is a tremendously bright spot in the future of the beef cattle business in North Carolina because of our good feeder cattle marketing program.

Sheep numbers continued to decline during this period. The lack of numbers creates definite marketing problems. During this biennium, 12 lamb pools were held, selling 3,216 sheep and lambs, for a total of \$71,910. The lambs were graded and sold to packers outside the state; with one packing company in the state killing a limited number of lambs, mostly off-season lambs.

Four wool pools were sold during the biennium, two mountain pools and two state pools. Collecting the wool at six locations each year, a total of 168,169 pounds were collected and sold for \$79,624.54. The wool was offered for sale on a bid basis and collected and classed by personnel of the section, working with N. C. State University Extension personnel.

A total of 325 replacement ewes were purchased and placed with producers. A properly managed flock of sheep is still a profitable livestock enterprise. The trend is toward larger flocks, with the small farm flock of 10 to 20 ewes going out.

LIVESTOCK

(Grading and Regulatory)

This section is responsible for certifying the quality of beef veal, lamb and pork through the application of established standards and by denoting official grades of these products.

Prior to March, 1970, this service was rendered on the basis of state grades. A cooperative agreement, however, between the N. C. and U. S. Departments of Agriculture now permits these specialists to apply U. S. Grades to these products. This brought about an expansion in the service as it is now provided by our personnel in federally inspected slaughter and packing plants, as well as state inspected plants. During the 1968-70 biennium, these specialists graded 10,911,177 pounds of beef, veal, lamb and pork.

Services of this section also included assisting North Carolina state-owned and supported institutions in buying, grading and acceptance of all meat and meat food products. This involved grading and accepting 24,067,053 pounds during the biennium and provided assurance to these institutions that the products they purchased met quality standards according to state specifications. Similar assistance was given city and county school systems in their purchases of meat and meat food products.

POULTRY AND EGGS (Market Development)

North Carolina ranks third in the nation in the production of turkeys, fourth in broilers and fourth in eggs. Income from poultry increased 18.7 percent from 1968 to 1969, thus continuing the growth of North Carolina's second largest agricultural industry. The combined income from poultry was \$332,990,000 during 1969.

The 1969 production of eggs in North Carolina was 3,405 million, placing this state fourth in the nation with an average price of 47.5 cents per dozen and a cash income of \$127 million. Egg production is increasing at the rate of 50 million eggs per year with approximately 30 percent of these being shipped to out-of-state markets.

Competition for and lack of sufficient labor has been mostly responsible for egg producers, packers and processors moving towards more automation in their egg grading and packing establishments. Also, keener competition and smaller margins of profit have helped to bring these changes in processing procedures. All of these changes have increased the demand for marketing service assistance. During the biennium, 276 egg producers and/or egg packers were visited for the purpose of assisting them with egg problems. Personnel were trained to

candle and handle eggs in order that the egg quality might be sufficient to meet the consumer demands in both North Carolina and other markets.

The primary problems confronting the egg producers, packers, and processors during the biennium were: cracked eggs, off flavors, incorrect washing, poor interior quality, machinery adjustments, proper handling and storage, facility planning, improper candling, sanitation, and good management. Specialists worked with 1,184 people on these problems during the period covered by this report. Available records show that egg service work saved 11 processors a total of \$402,016 during the biennium.

Personnel worked with 646 plants and/or producers, attended 144 meetings, held 169 conferences, and prepared 15 programs for radio and television.

Personnel assisted with judging 4-H Egg Cookery demonstrations in the southeastern, northeastern and east central district contests. Winners from these districts will participate in the state contest during 4-H club week at N. C. State University in Raleigh.

Also, prior to and during the State Fair, personnel worked with the fair director in planning and setting up a poultry products exhibit in which poultry, turkeys and eggs were exhibited. They also participated in judging poultry, turkeys and eggs competing for premiums. Likewise, assistance was given in judging eggs at county fairs, livestock shows and ham and egg shows.

Demonstrations pertaining to egg quality were given before home economics classes at both college and high school levels.

An intensive program of tissue sampling was carried out with turkey processors in 1969 to determine pesticide residue levels. The direct results of this sampling was to begin a cooperative program with N. C. State University to analyze feeds to determine sources of contamination. This cooperative program will run for one year and then sources of contamination will be supplied to turkey growers in order that they may avoid the contaminated ingredient.

Assistance was given to the Central Distribution Food Center with the N. C. Prison Department on purchase of heavy turkeys and portion control. These were heavy birds which were a drag on the market. This work provided a needed market and a reasonable priced source of protein for the prison system.

Breast bruising on hen turkeys became a problem during the

year and was causing extensive down grading and condemnations. The cause of the bruise was found and steps recommended to prevent future damage.

The section helped turkey processors with exposure of new products and test market and conducted the North Carolina dressed turkey show for the industry.

During the biennium, there were 202 visits made to various segments of the poultry industry. There were 28 meetings attended and 88 conferences held. In general, the marketing conditions were good and there was probably more than the usual amount of expansion and remodeling. There was one large new processing facility built and put into operation during this period. Our services were used to advise on lay-outs, equipment, and labor utilization. Though the industry prospered, they were watching the future with caution, knowing the tendency of over producing when times are good. With this in mind, there was a heavy emphasis put on more efficient operating and better quality control programs. To advise them in this area, we distributed to the processors a publication entitled "Evaluating Production In Poultry Plants". Its purpose was to recommend a proper balance in quality and efficiency to assure the best economic results. We were also called on to study a critical proposal by USDA concerning the moisture control in poultry and to act as an advisor on the national level.

Much of this work was carried on in cooperation with the N. C. Turkey Federation, N. C. Poultry Federation, N. C. Poultry Processors Association, N. C. Egg Marketing Association and the N. C. Egg Packers Association.

POULTRY AND EGGS (Grading and Regulatory)

The Poultry and Egg Grading Section is responsible for the official grading of poultry, shell eggs and egg products in North Carolina. These services are used primarily by plants processing and packing these items. Marketing efficiency is increased by the proper certification of the class, condition and quality of the products.

Presently, the Federal-State grading service employs 14 licensed poultry graders, stationed in 10 plants throughout North Carolina. Thirteen shell egg licensed graders are stationed in 9 plants, and 3 egg product plants have 4 inspectors. There are 2 relief graders licensed in all of the 3 products: poultry, shell

eggs and egg products. Each plant, under contract, operates under strict sanitation requirements, thus assuring the consumer of a better product; one that is processed, graded, and packaged in accordance with all state and federal regulations.

Numerous visits were made throughout the state to give assistance to plants with sanitation and various other problems. Equipment and facilities were surveyed and technical assistance given when necessary. The grading section enjoys an excellent working relationship with industry and strives hard to merit this cooperation.

Following are figures showing the volume of poultry products graded for this biennium for comparison to the last biennium :

	1966-68 <i>Biennium</i>	1968-70 <i>Biennium</i>	<i>Percent Increase</i>
Shell Eggs (Dozens) -----	74,486,160	90,027,650	20.9
Frozen Eggs (Pounds) ----	7,731,105	12,270,569	58.7
Chickens (Pounds) -----	505,779,532	579,869,418	14.6
Turkeys (Pounds) -----	173,939,570	200,528,262	15.3

EGG LAW

Several changes were made in the law during the past biennium to clear up misunderstandings and to state in more explicit terms the authority of the North Carolina Board of Agriculture to adopt rules and regulations and grades and standards to enforce the law fair and just in all North Carolina establishments that market eggs. One section of the law was amended by the General Assembly, giving the Board of Agriculture authority to adopt grades and standards to protect the consuming public from inferior and unhealthful eggs.

Egg products inspection has proven to be beneficial to our egg products facilities. Due to strict sanitation, processing and refrigeration, no salmonellosis has been found since enforcement of this program. There are six plants operating under this program at present.

Specialists continued to work closely with the industry in an effort to enforce the Egg Law. Close contact was maintained with industry members by attending professional meetings of the industry. Egg Law personnel worked closely with other departments of state government to acquaint personnel of the requirements of the law and benefits to be obtained by compliance.

Administration of the Egg Law involved visits to 18,469 retail facilities during the biennium, 25.4 percent of which were in violation of the North Carolina Egg Law. This shows a decline

in percentage of violations indicating compliance with the law by more retail establishments each year. Personnel visited and worked with 913 producers and distributors in an effort to correct producer and distributor violations. Hearings were held with 7 violators in an effort to secure compliance without court action. The department brought 8 court cases against persistent violators during the biennium.

WORK SUMMARY

	1966	1967	1968	1969
Retail stores visited	9,432	8,859	9,104	9,365
Retail stores in compliance	5,266	6,078	6,582	7,197
Retail stores in error	4,166 44.1 %	2,781 31.4 %	2,522 27.7 %	2,168 23.2 %
Distributors & producers visited ..	646	498	442	524
Inspections	16,139	17,391	17,957	18,805
Eggs graded	1,491,674	1,614,428	1,675,531	1,836,058
Cases of eggs removed from sale ..	3,791/3	4,014/4	4,447/6	3,537
Violation letters to distributors	2,583	1,560	1,113	1,193
Violation letters to retailers	4,166	2,781	2,522	2,168
Meetings attended	60	47	67	79
Days in field	1,215	1,173	1,259½	1,280
Visits per day	8.3	8	7.57	7.73

FINANCIAL SUMMARY

Expenditures	\$50,970.05	\$57,891.16	\$59,934.63	\$66,470.18
Cost per visit	5.06	6.19	6.27	6.72

TOBACCO

The transition from tied to untied tobacco in the flue-cured market, which was started early in the 1960's, was completed in 1968, bringing with it many problems that have been of major concern to all segments of the tobacco industry during the 1968-70 biennium. The deterioration of quality and increase in foreign matter with two years of full season untied, pre-sheeted flue-cured sales emphasized the urgency during the 1968-70 biennium of giving more attention to quality improvement practices through service programs with growers.

The problem of improving marketable qualities of tobacco was pursued in several areas of work during the biennium.

In order to reach as many as possible of the approximately 200,000 tobacco growers in North Carolina relative to improving quality, a broader use was made of free farm program television time, radio programs, newspapers, magazines and meetings with organized farm groups. Through these media, growers were shown and told how to meet the minimum requirements in farm sorting, removing foreign matter and packaging to get their flue-cured and burley tobacco into the most acceptable condition based on current market demand. The service provided growers through this broad contact program familiarized an increased number of farmers with the requirements necessary to meet current market demands and added thousands of dollars to their income through the use of proper practices in preparing their tobacco for market. This effort will be intensified during the next several years.

A joint project started two years ago between the N. C. Department of Agriculture and N. C. State University to improve the packaging of loose leaf flue-cured tobacco paved the way for a new five-year joint project started July 1, 1969 on loose leaf packaging. Tobacco buying companies and packaging companies are also included in this project. This three-phase project is directed toward improving the quality of tobacco reaching the purchaser's processing plant, as well as improving the efficiency of handling bulky loose leaf tobacco.

Phase I, a feasibility study of the problem, was completed June 30, 1970. Phase II deals with developing techniques and suitable packages, and Phase III deals with wide use market tests of packages. Phases II and III are scheduled to be completed during the next four years.



Conveyor system in operation in flue-cured warehouse.



Forklift adapted with conveyor section moving sheets of tobacco from receiving conveyor to auction sale floor.

A close working relationship was continued during the biennium with the (ARS-USDA) industrial engineer assigned to tobacco market facility research. This involves assisting warehousemen to put into operation receiving conveyor and forklift systems for receiving and displaying tobacco on warehouse floors so as to improve the quality condition of tobacco and containers going through the auction system as well as improving efficiency in handling. Assistance was given some 50 warehouses in North Carolina which have now installed this system.

Assistance was also given the Industry-Wide Flue-Cured Marketing Committee in an advisory capacity in making up market plans and schedules and in computing sales so that the Marketing Committee could invoke penalties on warehousemen who failed to comply with volume of sales regulations.

Upon request from vocational agriculture teachers, county extension agents, farm organizations and other groups, meetings were continued with these groups during the winter months of 1968-69 and 1969-70 to inform them of the current tobacco situation and market outlook for the year. Many growers depend heavily on this service, which is also voiced on radio and television, in making plans for the upcoming market year.

Under Chapter 106 of the General Statutes, the Commissioner of Agriculture is held responsible for certain functions related to the marketing of flue-cured and burley tobacco in North Carolina. These responsibilities are carried out by the tobacco section. (1) As required by law, this section collected certified leaf sales reports each month during the marketing season from each of the approximately 200 flue-cured and burley warehouses that operated in North Carolina during the biennium. This data was recorded in a permanent ledger as required, and from this record, a summary report was prepared and distributed to news media and a circularized mailing list each month during the marketing season. (2) At the end of the 1968 and 1969 marketing seasons, the twentieth and twenty-first annual issues of the North Carolina Tobacco Report bulletin were prepared. This bulletin, which contains one of the largest accumulations of pertinent tobacco information, was distributed upon request to about 6,000 persons and firms throughout the tobacco industry. (3) A summary report was prepared each year of the biennium for the N. C. Department of Revenue. As required by law, this report shows volume for each of the 200 warehouses listed by counties and markets. This data is used by the Revenue Department as a basis



Tobacco Marketing Specialists Tommy Bunn and J. H. Cyrus examine foreign matter picked from flue-cured tobacco at processing plant. (A) Suckers, grass, feathers, paper, etc.; (B) Tobacco twine; (C) Miscellaneous objects such as scrap metal, clothing, toys, bottles and other miscellaneous items.

for establishing privilege license tax for each warehouse according to their volume of business. (4) During the biennium, continuous checks were made where direct purchases of tobacco were involved through buying stations. Buying stations charging the grower a fee for handling his tobacco were treated the same as auction warehouses. Spot checks were also made during the marketing seasons relative to warehouse charges, which are indicated in the law, and other minor regulations related to the marketing of flue-cured and burley tobacco.

COTTON

Much of our work with the cotton interests of the state during the biennium was channeled in the following areas: engineering assistance, management consultation and training assistance to operating employees.

The engineering work involved selecting new equipment, re-vamping existing gin systems, advising on maintenance of equipment and processing techniques to assure better quality cotton and acceptability on the market.

Work with management was centered around advising gin managers on items of interest and concern that would affect their actions and decisions.

Equipment changes and system changes in gins, along with normal turn over of employees, emphasizes the need for training or retraining operating employees. By keeping in close contact

with the gins across the state, we are in a position to pass on operating techniques which have proven successful and advise against those practices which have failed.

One example of such a program was our continued supervision of the ginning program under the North Carolina Cotton Quality Improvement Committee. We checked gins who have signed agreements to see that they were operating under the operating criteria developed for the program. A detailed study of the results of cotton ginned by gins cooperating under the program, and those gins not operating under this voluntary program, as to results, showed better grade, longer staple, better uniformity, stronger tensile strength, and a better turn out. Sufficient data on differentials in price could not be obtained to give a reliable statistical analysis, but the textile producers were favorably impressed, and recommended that the program be continued.

Another example was in development of one variety gins and communities. The textile industry recognizes that variety has its influence in product in addition to the physical factors of cotton. One two-county area was organized around gins in promoting and growing a specific variety of cotton. Particular attention was given to proper agronomic practices and to proper ginning so as to maintain tensile strength and length by using as little heat as necessary, and in not recycling the cotton unnecessarily through the cleaning equipment. This cotton was marketed as part of a pool and returned a substantial amount to the producer.

Another area of endeavor was in maintaining and expanding the market for North Carolina cotton. Economic conditions and high interest rates made the acquisition of cotton by the textile mills nearer to the time of its manufacturing use than the former practice of buying ahead. The placing of cotton "in the loan" and redeeming it for sale to the mills as needed provided the producer with immediate capital while affording the mills the advantage of a substantially lower interest rate. At the time of sale, the producer sold his equities at a profit and the manufacturer paid interest, storage, transportation and delivery charges at an economic advantage to him over initially buying the cotton and tying up capital at high interest rates.

By making available to merchants the grade, staple, and location of cotton under Form A Government Loan, we facilitated this form of marketing to the mutual advantage of buyer and seller.

FRUITS AND VEGETABLES (Market Development)

Fruit and vegetable production in North Carolina continues to be one of our state's important sources of supplementary income for both large and small farmers. This section has played a large role in bring buyer and seller together during the past biennium. Buyers of fruits and vegetables come to North Carolina to purchase quality products because they know that our state has the available farmers to produce these crops and they rely heavily on our specialists in helping locate their needs or in getting established within the state. We maintain close contact with the fruit and vegetable interests in North Carolina, and are able to place these buyers in areas where the type of produce they prefer can be purchased. We also assist individual growers and grower groups with contacting potential buyers for their fruit and vegetable crops.

During the past two years there were approximately 43,000,000 packages of fresh fruits and vegetables sold commercially by North Carolina farmers for a cash value of approximately \$100,000,000.

The average acreage each year of these fresh market fruit and vegetable crops for which marketing assistance was available was as follows: sweet potatoes, 22,000; Irish potatoes, 10,000; peppers, 7,000; tomatoes (early), 1,500; tomatoes (mountain), 1,600; strawberries, 1,500; blueberries, 5,000; snap beans, 3,000; cabbage, 4,500; sweet corn, 4,500; fresh cucumbers, 6,000; watermelons, 7,500; cantaloupes, 2,000; other vegetables, 4,000. In addition, services were available in marketing 6,000,000 bushels of apples and 1,200,000 bushels of peaches.

Another important source of income to North Carolina farmers was provided through contractual production of fruits and vegetables. Approximately 50,000 acres of contractual production was carried out each year of the biennium. The crops and acreage of each were as follows: pickle cucumbers, 30,000; sweet potatoes, 5,000; Irish potatoes, 7,000; snap beans, 2,500; blueberries, 500; cabbage, 250; peppers, 4,000; pumpkins, 250; others, 700.

This section assisted with a number of problems encountered in the production of these crops by conducting 245 meetings and conferences with growers, grower groups, processors, and company buyers with reference to marketing the many North Caro-

lina products. They also contacted approximately 74 buyers and processing firms through the biennium concerning marketing North Carolina fruits and vegetables. Some of these buyers and processors were given extensive assistance in locating, transporting, grading, setting up machinery, and the many problems that arise in marketing these crops. Operators of 34 buying sheds for pickles, peppers, cabbage, tomatoes and fresh market cucumbers were given assistance with obtaining buyers, obtaining and arranging equipment, and transporting their products. A bulletin entitled "Schedule of Movements" was published, which includes the volume of inspected produce that moves through our markets each year, and was distributed to 1,000 buyers. Ten thousand copies of a brochure designed to assist growers with better understanding grades in sweet potatoes and apples were printed to help in upgrading these products.

FRUITS AND VEGETABLES (Grading and Regulatory)

Many changes have taken place in our grading and regulatory services during the past biennium. The same principles apply, but changes in the methods and practices have been necessary to keep abreast of the new and improved marketing patterns brought about by the many drastic changes and improvements in production, harvesting and marketing techniques.

Grading and inspection of products is one of the oldest services of the Markets Division, requiring a considerable number of personnel to perform the work. North Carolina was one of the first states to provide this service to producers and shippers. Due to the different seasons of the year when certain crops are harvested, our shipping-point work has been a fluctuating type of activity. During the months of January through March, only a small number of licensed personnel were required for grading and certification work on peanuts. The number increased to 50 or 60 men by June, working mostly on potatoes and auction markets and built up to more than 300 personnel working peanuts, sweet potatoes and processing plants during the fall and early winter months.

The seasonal nature of the work has caused a large turnover in personnel which necessitated conducting many training classes for new personnel and refresher courses for personnel with previous inspection and grading experience. The courses were

not only necessary but most beneficial. Accuracy in determining the grade of a product and impartial application of the standards are essential.

Our grading and inspection program is of great importance in promoting an efficient and economical method of marketing fruits and vegetables and improving our entire marketing system. These services do not always meet the eye of all persons concerned, however, they do benefit both the producer and consumer.

The producer and shipper want to know the grade of their product before it is shipped to a distant market. The consumer can buy with confidence when selecting their produce by a standard quality designation. The rapid increase in the use of consumer-type containers makes the use of grades more important. Consistently packing uniform quality means repeat purchases by the consumer, which results in increased sales by the producer.

Many advancements have been made in our grading techniques. Most of these came about by the introduction, improvement and use of mechanical equipment, enabling inspectors to analyze a large sample, which results in more accurate grade determinations. The use of mechanical equipment has also been of some advantage to the service because of the shortage of personnel to perform the service.

Our fruit and vegetable grading service also conducts a receiving market service which is largely for the wholesale trade. This service is vital to long-distance trading and offices are maintained at Asheville, Charlotte and Raleigh. Any receiver who is not satisfied with the produce he receives may contact one of these offices and request an official grade determination of the commodity in question. In nearly all cases, claims and disputes are settled on the basis of the official certification issued by our most experienced inspectors. The above services are conducted on a standard fee basis. The fees are assessed the person or firm requesting the inspection.

This section also carries out the provisions of three regulatory laws, namely: the "Handlers Act", the "Seed Potato Law" and the "Branding Law".

The Handlers Act is a law designed to protect producers who enter into contracts with persons or firms to produce a commodity at a stated price. The buyer must have his contract approved, furnish satisfactory evidence of his ability to carry out

his financial obligations to the producers and have a permit issued by the Commissioner of Agriculture before entering into such contracts. During the past biennium, there have been in excess of 51,000 acres of pickling cucumbers plus several thousand acres of other vegetables grown under contract in North Carolina. The buyers operated over 300 receiving stations annually for the purpose of receiving and shipping produce under contract.

The Seed Potato Law is designed to protect North Carolina producers against inferior seed potatoes for propagation purposes. Eight to ten inspectors are assigned to this work during the period when seed stock is arriving in the potato areas. Attempts are made each year to bring seed potatoes into the state for propagation purposes which do not meet the requirements of our Seed Potato Law. Our services are most helpful to producers and dealers receiving seed which have been frozen en-route.

The Branding Law is designed to protect the consumers against deceptive packing and labeling of farm products. North Carolina apple and peach growers and shippers recognized the value of accurate and true labeling and asked for and received a token appropriation for the enforcement of our branding and labeling law. This service began in 1967 and has shown excellent results during the past biennium. Our inspectors check to see that the containers are properly marked as to name and address, variety, size, volume and grade. Grade markings apply to apples only. They also check for deceptive packing, determining if the package is uniform throughout and if they meet the grade as marked. This law applies to all apples and peaches offered for sale or exposed for sale, regardless of state of origin.

The following statistical summary is given to show the broad scope of these services and the volume involved.

Summary — 1968-70

Pounds inspected at processing plants	98,400,140
Pounds inspected at shipping point	529,965,123
Pounds of Farmers stock peanuts graded	705,838,000
Packages graded at auction markets	2,609,433
Carlots inspected for receivers	1,632
Pounds inspected for state and federal agencies	7,877,311
Number of training classes conducted	18

Number of new inspectors trained	231
Number of inspectors given refresher courses	459
Pounds of seed potatoes checked	710,414,000
Number of permits issued under Handlers Act	60

Other activities included conducting conferences with local supervisors; attending producer, shipper and dealer conferences to explain the grading activities and requirements of our regulatory laws; preparing and presenting radio programs and preparing newspaper articles for release relating to the work.

GRAIN (Market Development)

The grain industry in North Carolina continues to expand in the number and size of marketing, processing and storage facilities. Approximately 4 million bushels of additional storage for grain and seed commodities was provided by this industry during the biennium.

Grain processing into feed and food products has also made new strides into high volume producing units. Twelve new feed mills have been completed or are under construction. These facilities represent an investment of more than \$4 million. Goals relative to increased market efficiency, while also adding market strength and competition, have again been realized, to a very satisfactory degree.

Grain producers continue with greater use of mechanized production and harvesting methods. Many two-row combines have been replaced with four-row machines. On-farm installations of storage and drying facilities have also increased. Commercial facilities have expanded and remodeled to provide faster unloading and drying of early harvested grain. New methods, as well as new equipment, are being tested and used. Recommendations flowing to this industry from many sources are being increasingly utilized.

Grain dealers, millers, warehousemen and producers realize that if they are to stay in a profitable and secure position that they must try to meet their own customers' demands as well as those made by competition. Their experience, during this period, has been that the competition for the grain that is produced in North Carolina has never been stronger. Market prices during harvest have increased more between 1968 and 1969 than in several years. This is true for all grain. Returns to the grain

dealer who stored the grain have also recorded high levels and profitable inventories. North Carolina farmers have produced and marketed grain in this period that compares with, or exceeds in quality, that from any area of our nation.

In striving to aid our grain industry in these endeavors during the biennium, our specialists:

1. Continued to provide assistance and information relative to the feasibility, and to the selection and arrangement of grain storage, drying and handling facilities in North Carolina. A total of 173 firms were assisted with these decisions.

2. Provided specific information and assistance relative to the construction and use of large capacity storage structures. This includes the use of large warehouse spaces for the temporary storage of grain or seed commodities. Eighteen firms expanded into this type of operation during the biennium.

3. Provided assistance relative to the use of new equipment and new methods of handling and keeping grain produced in North Carolina. On-the-job contacts and assistance with this was provided to 163 firms.

4. Provided information and assistance to 265 firms relative to the use of sound management practices within the industry. This includes the practice of hedging and contract marketing to reduce risk and strengthen buying power.

5. Continued to give information and assistance to all segments of the grain and seed industry on quality grain programs, including storage practices to control insects, decay and other causes of grain losses.

6. Assisted soybean producers and buyers in meeting contract requirements for sales of Dare soybeans to Japan.

7. Conducted demonstrations and schools on the proper application of the U. S. Grain Standards, and on the selection and use of equipment used for this.

8. Assisted 36 seed processors with facilities and equipment in providing increasingly higher quality seed to North Carolina farmers.

9. Provided timely information and assistance relative to the techniques of proper harvesting and handling of grain and seed from the farm to the market..

10. Assisted seedsmen and grain processors in efforts to expand their sales into new areas or markets.

11. Assisted in the preparation of consumer information including buyers' guide to the food industry.

12. In carrying out this program, we continued to use radio programs, TV programs and the press to provide timely and pertinent information to all levels of the market. To this end, we presented 16 radio programs and 28 TV programs and prepared 20 news articles or newsletters.

We continued to work closely with trade association members in providing these programs of market development and service to our total industry. These include the Grain and Feed Dealers Association, Seedsmen's Association, N. C. Corn Millers' Association and others. Also involved was the constant and valuable cooperation of other commodity and engineering specialists in the Division of Markets, as well as such agencies as the Agricultural Stabilization and Conservation Service, Farmers Home Administration and the Extension Service. We are grateful for our relationships with these groups.

GRAIN (Grading and Regulatory)

During the fiscal year 1968-1969 this section sampled and graded 1,871 lots of grain in North Carolina. The estimated amount was approximately 4 million bushels.

During the 1969-1970 fiscal year our grading work increased to 7,898 lots and amounted to more than 16 million bushels.

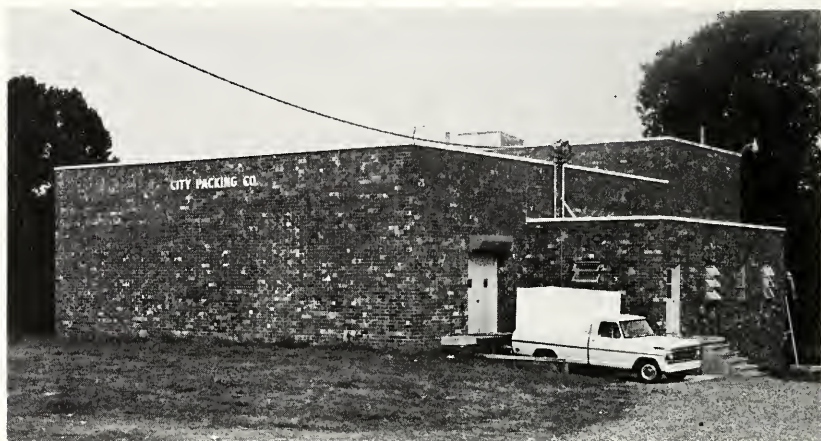
We conducted 15 grain schools and clinics throughout the state to assist the grain industry with the proper techniques of determining grades of specific grains. In addition, we attended 49 meetings in relation to grain grading and took part in 91 conferences. Ten radio and television programs were prepared and presented to further promote this service among the industry.

We established one contract for official grain inspection on a year-by-year basis. The value of this inspection service when measured in standard discounts to the vendor amounts to approximately \$10,000 per month.

Eighteen temporary grain technicians were trained to service the grain industry during the fall grain harvest season and two licensed grain inspectors have been trained to service the industry on a full-time basis.

ENGINEERING

Engineering assistance to aid processors in expanding and improving existing marketing facilities, as well as planning for



Detailed plans for this modern packing plant were prepared by engineering specialists of the Markets Division.

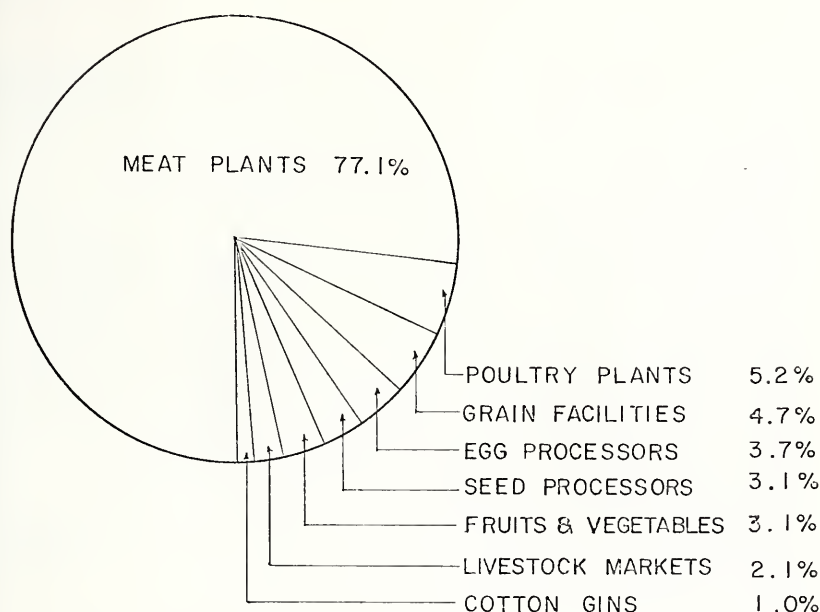
the construction of new ones, was provided for a variety of facilities during the biennium. Among the main factors considered in assisting these plants were sanitation, product quality, plant improvement and overall efficiency. The major objective, however, was the expansion and improvement of marketing facilities for North Carolina farmers.

The Engineering Section played a significant role in supplying operators of marketing facilities with answers to numerous recurring problems which they encountered. Much of this was done on a consulting basis where the engineer visited the processor and studied the problem and made on-the-spot recommendations or through a more extensive study where all of the facts were obtained in the field and brought back to the office for further study. The latter method usually resulted in recommendations containing a detailed set of drawings and specifications.

Detailed drawings were prepared for 192 facilities. This is an increase of 46 percent over the 1966-1968 biennium and was due primarily to the many abattoir and meat plant owners who were trying to renovate their businesses to comply with the minimum standards of the Wholesome Meat Act. It is estimated that the construction costs for these facilities when completed will amount to \$6.4 million.

The following chart indicates the types of facilities assisted showing the percentage of each type.

TYPES OF FACILITIES ASSISTED SHOWING
PERCENTAGE OF EACH TYPE



The Cotton Fiber Testing Laboratory was also operated as a part of the Engineering Section. The major function of the laboratory was to provide fiber data on North Carolina cotton to all segments of the industry. The laboratory released a weekly report during the ginning season which identified the quality of the crop by areas, usually consisting of one or more counties. The report was mailed to cotton mill buyers, brokers, and merchants as a means of keeping them informed on the availability of the various grades of North Carolina cotton. During this biennium, the laboratory tested 11,466 samples for all segments of the industry.

MARKET EXPANSION AND PROMOTION

"Build North Carolina By Using North Carolina Products" is still our slogan and our goal is to put more dollars in Tarheel wallets by expanding the market for our products through promotional efforts.

During the biennium, the section assisted eleven North Carolina food processing firms or associations with in-store promotions in retail grocery stores across the state. Some promotions consisted of demonstrations passing out samples of products to consumers; and others consisted of special displays followed up by mass media advertisements. In every instance, a noticeable increase in sales resulted during and following the promotion.



Promotion of North Carolina food products extended into Louisiana. Mrs. Elaine Harvell, a division home economist, discusses Tar Heel blueberries over a New Orleans television station with Commissioner of Agriculture Dave Pearce.

In 1970, the section cooperated with the Southeastern Blueberry Council and the North American Blueberry Council in making arrangements for North Carolina blueberries to be featured in 1100 stores in the southeastern states. This promotion was backed up with point-of-sales materials, and news releases, consisting of color photos to the news media in the area in which the special promotion occurred. As a result of quality berries, ideal weather conditions, and demand for North Carolina blueberries, all of the 1970 crop was sold on the fresh market.

Realizing that more people are eating away from home than ever before, more emphasis was placed on institutional food promotion during the biennium. After compiling a list of North Carolina food manufacturers that process institutional size packages, efforts were made to get the buyers and sellers together. With cooperation from the N. C. Purchase and Contract Division, a list of school lunch supervisors, hospitals, nursing homes, rest homes and colleges was secured. At the end of the biennium, all institutions in 20 counties had been visited by our marketing specialists. The purpose of the visit was to encourage them to buy North Carolina products when price, quality and service were equal. While working with the institutional trade, many problem areas were discovered in which our specialists realted to the other sections of the Markets Division for assistance and correction.

In cooperation with the North Carolina Restaurant Association, North Carolina food products were promoted in many restaurants throughout North Carolina. Specialists from this section assisted 12 North Carolina processors of institutional foods in exhibiting their product in the North Carolina Food Exposition, one of the largest food shows in the state. As a result of this show, many North Carolina products were introduced to the institutional market.

North Carolina food products were promoted on television and radio. Approximately seven live television shows and two taped shows were aired monthly throughout the binennium by our home economist. One regular radio program was presented monthly and others were presented when needed to promote seasonal commodities. Our home economist appeared on ten television shows and two radio shows in the state of Louisiana during May, 1970, promoting blueberries.

Two public service taped commercials featuring "Buy North Carolina Products" were produced during the biennium. All stations have been very cooperative in showing these two programs.

The television and radio promotion work was backed up by releases going to all daily and non-daily newspapers and magazines across the state. The timing of releases was geared to coincide with television and radio promotions, seasonal supply of commodities, and holiday events. Acceptance of this information has been excellent and requests continue for names to be placed on the mailing list.

Survey work was done to develop a list of commodities available for export, as well as a list of companies engaged at present or interested in export trade. This list will be revised and necessary information will be furnished to the Foreign Agricultural Service (FAS) to become a part of their Trade Referral System. This move by FAS should prove beneficial to all states and firms interested in export trade.

Contacts were made with processors not currently engaged in export trade to create interest and point out the potential for their products in the foreign market.

An agri-business trade mission was made to Australia and the Far East to make contacts for agricultural and industrial trade. This mission included the foreign trade specialist and the Commissioner of Agriculture, as well as representatives of marketing cooperatives and combination export agents. Stops were made in Sydney and Melbourne in Australia, also in Hong Cong, Taipei and Tokyo. The group was warmly received at each stop and the services of the agricultural attaches in each area provided excellent contacts for the group. Assistance was given the N. C. Soybean Association in finalizing a contract for 3,000 tons of Dare soybeans from North Carolina. Sales of poultry and turkey products have already been made as a result of this trip and many contacts were made which show encouraging potential for future trade in the Far East.



North Carolina food products attracted considerable interest at the 1969 ANUGA International Trade Fair in Cologne, Germany. Ed Manning of Raeford Turkey Farms, Inc., and Fran Winkler, home economist, acquaint fairgoers with North Carolina turkey products.

Seven firms were assisted with participation in the ANUGA Trade Show in Cologne, Germany by the foreign trade specialist who attended the show along with the assistant director of the Markets Division. The arrangement of the U. S. exhibit made contact with the trade much easier at this show than in the past. Results were satisfactory, and we were able, with the assistance of a German agent of one firm, to move 300,000 pounds of turkey products and since have moved a sizable quantity of honey into the German market. This shows potential for increased honey sales in the future. Some products new to the market were sampled with pleasing results.

Price was the deterring factor in the sale of several commodities which created considerable interest. Future participation in the ANUGA Trade Show is highly recommended and emphasis will be given to firms sending a representative or appointing a foreign agent to be present at the show.

Facilities for exhibit space in the new World Trade Center in New York City are still under construction and the projected opening date is now the spring of 1972. Plans to participate with an exhibit in cooperation with other state agencies are unchanged.

Several processors were assisted with sending samples overseas and other firms were encouraged to send samples where trade information seems to justify.

Plans are being made and one official meeting has been held with officials from Virginia and South Carolina to promote cooperation between the three states in overseas promotion from the area. Guidelines for this effort have been agreed upon by the three states and suggestions and advice from FAS will be sought before this program is finalized.

The foreign trade specialist attended a point of purchase workshop in Washington to learn more about the activities of FAS and the cooperators in this area and our plans are to participate personally or through overseas agents in some of the FAS sponsored in-store promotions.

A brochure has been prepared which will be used at trade fairs and will be mailed to importers and agricultural attaches to alert potential buyers of commodities available from North Carolina.

The Market Expansion and Promotional Section assisted and worked with many special events that promoted North Carolina food products. To help further emphasize the importance of the fruit and vegetable crops in North Carolina, this section worked

with the blueberry, peach and potato festivals and with the chain stores promoting these products. Direct assistance was given to the chain stores in helping promote North Carolina food products during special emphasis weeks or months such as June Dairy Month, Better Breakfast Month, and Broiler Month. Three special events this section annually works with are the N. C. Chicken Cooking Contest, the Corn Meal Bonanza and the Governor's Retail Food Industry Award. This section assisted the Special Events Section with the planning of the Governor's Award. The section also helped in coordinating many special food demonstrations, exhibits and proclamations. North Carolina grown and processed foods were exhibited and demonstrated throughout the state at shopping centers and fairs during the biennium and featured world renowned chef Eddie Doucette.

Through the joint efforts of the Department of Agriculture, Carolina Power and Light Company, Duke Power Company and Virginia Electric Power Company, a test kitchen became a reality early in the biennium for the use of our two marketing home economists.

Preparation for all television programs and food demonstrations was done in the kitchen. Assistance was given the yam industry in developing quantity recipes for use by school food service managers. Recipes were tested for a cornmeal cookbook which was printed. North Carolina foods were prepared for sampling at group meetings of home economists, nutritionists, homemakers and others. For special promotional events, food preparation was required such as for Blueberry Week and June Dairy Month. Acceptance work was done on some of the newly developed foods as turkey and chicken sausage.

This kitchen has made promotion far more effective than was possible previously for it has been a laboratory for preparing, developing and testing North Carolina foods.

During the biennium the "North Carolina Food Products Buyers Guide" was published. This guide provided a listing of all major food processors in the state. This guide has been distributed to major food buyers in and out of the state. It has proven to be a handy reference for the food industry in North Carolina.

Leaflets on various commodities such as blueberries, poultry and cornmeal were prepared for mass distribution at fairs, exhibits and other meetings. The poultry and cornmeal leaflets were a compilation of winning recipes from cooking contests.

Each television program offered a copy of the demonstrated recipe upon request. Homemakers frequently requested this commodity information for use in their homes.

The major publication, a 50-page "Heritage Corn Meal Cookery" booklet was prepared in cooperation with the N. C. Corn Millers Association. The association underwrote the expense with the major portion of the recipe selection, testing and editing being done by the marketing home economists.

MARKET NEWS

Increased emphasis on livestock reporting was stressed by the Market News Section during the biennium. A livestock bulletin listing prices and market conditions of cattle, top hogs, and feeder pigs, was prepared and mailed each week to interested persons in the livestock industry and proved to be a helpful tool in keeping these people informed on market values.

Reporting of feeder pig sales was expanded to include 14 sales at 8 locations. Reporters attended and reported four weekly livestock auctions and the office was in daily contact with 32 hog buying stations. One part-time livestock reporter was employed to meet our needs in this area of work. The directory of "Livestock Markets and Dealers in North Carolina" was revised and published during each year of the biennium.

At the request of the state's egg industry, a weekly egg inventory was reported each week showing the surplus or shortage of eggs within the state. Contacts were made with the major packers and a combined report was called back to these individuals within a few hours, thus the quickness was a vital factor to the industry.

Daily contacts with leading egg grading stations within the state provided wholesale cartoned prices for eggs according to size on a delivered store basis. Hatching egg quotations were compiled and reported once each week. Mimeographed reports were mailed semi-weekly to those individuals requesting this report.

A significant improvement in the reporting of broiler market conditions was instituted during the biennium with the complete cooperation of the industry. The actual number of birds slaughtered and weight of the birds were reported to our office each day and the combined information was reported back to the industry on a current basis. We also continued to report daily at farm values and ready-to-cook prices on broilers each day.

We continued to provide up-to-the-minute market reports on other major farm commodities including grain, turkeys, apples, sweet potatoes, Irish potatoes, tobacco and all of the fruit and vegetable items moving through the auction produce markets.

As an aid to cabbage producers in Eastern Carolina, we began during the last year of the biennium to report prices on an f.o.b. basis, along with information on overall market conditions. This was well received and will be continued.

The dissemination of the collected information remained a vital part of our service. During the biennium, up-to-the-minute information was released periodically during the day to Associated and United Press. Special daily reports were prepared for several newspapers throughout North Carolina, including The Asheville Citizen and Times, The News and Observer, Wilmington Star-News, Fayetteville Observer, and the Kinston Daily Free Press. Daily radio programs were voiced directly to WPTF Raleigh, WBT Charlotte, WNCA Siler City, WKBC North Wilkesboro, WCSL Cherryville, WWNC Asheville, WSKY Asheville, WWIT Canton, WVMS Black Mountain, WFGW Black Mountain, and the Caranet radio network of 28 stations.

In addition, we prepared and mailed on a regular basis mimeographed commodity reports to all persons upon request.

COOPERATIVES AND TRANSPORTATION

Farmers can achieve through cooperatives what they cannot do as individuals. Cooperatives that are owned by farmers and patronized by the owners are extensions of the farm business. Farming today is big business and cooperatives are an integral part of more than 90 percent of the farms in North Carolina.

Farmer owned and operated cooperatives are definitely on the increase in North Carolina. Organized under Chapter 54-V-129 of the General Statutes, 16 new cooperatives began operations during this biennium as compared to 4 during the 1966-68 period.

As more and more emphasis is placed on self-help and economic opportunity, more cooperative ventures will develop under these programs. Also, today's farmers who do not fall into the above category will develop new and expanded cooperatives to help expand and improve their farming revenues.

Direct assistance was given the following new cooperatives in forming Articles of Incorporation, By-Laws and in cooperative organization and management:

Coastal Growers Cooperative, Inc., Rose Hill, N. C.
Needmore Labor Association, Inc., Fuquay-Varina, N. C.
Piney Grove Labor Association, Inc., Fuquay-Varina, N. C.
Wilbon Labor Association, Inc., Fuquay-Varina, N. C.
Willow Springs Labor Association, Inc., Willow Springs, N. C.
Southern States Franklin Cooperative, Inc., Durham, N. C.
Tri-County Farmers Association, Inc., Whiteville, N. C.
Piedmont Cooperative Marketing Association, Inc., Winston-Salem, N. C.
Lumbree Farms, Inc., Lumber Bridge, N. C.
Albemarle Cooperative Marketing Association, Inc., Edenton, N. C.
North Central Livestock, Inc., Roxboro, N. C.
Hyde Industries Cooperative, Inc., Fairfield, N. C.
Crescent Foods, Inc., Staley, N. C.
Fraternity Trade Association, Inc., Chapel Hill, N. C.
Buckhorn Farmers Association, Fuquay-Varina, N. C.
Farmers Feed Service Cooperative, Inc., Harrells, N. C.

Many other cooperatives were assisted in such ways as advising managers, directors and members regarding management, sales, purchases, financing, public relations and record keeping. Also, financial reports of all marketing and purchasing cooperatives were received, reviewed and filed.

Fourteen new non-profit promotional organizations were given assistance in organizing and planning. These organizations are chartered under Chapter 55-A of the General Statutes.

In the field of transportation, activities were many and varied, including filing verified statements in support of some transportation proposals and in opposition to others. Filing letters of protest to oppose unnecessary freight rate increases that would adversely affect agri-business in North Carolina was done in certain cases before the Interstate Commerce Commission. Also, considerable assistance was given in getting rail cars made available to the agricultural industry to receive and ship agricultural products to and from farms.

AGRICULTURAL FAIRS AND SPECIAL EVENTS

The Agricultural Fairs Section has the responsibility of inspecting and classifying agricultural fairs for compliance with North Carolina General Statutes regulating bona fide agricultural fairs. Assistance is given to fair managers in upgrading their particular fairs.

Sixty-four fairs were inspected in 1968. Of this number, 19 were classed as No. 1, 14 as No. 2, 15 as No. 3, and 16 as No. 4. In 1969 there were 61 fairs inspected. Of this number, 20 were classed as No. 1, 10 as No. 2, 14 as No. 3, 16 as No. 4, and one failed to be classified as an agricultural fair.

A new system of rating agricultural fairs will begin in 1970-1971. This system was worked out by the North Carolina Association of Agricultural Fairs and Commissioner Graham's office. It is for the purpose of separating bonafide from non-bona fide agricultural fairs and completing the information section of the General Statutes relating to ownership and management.

The Governor's office was assisted with the Annual Governor's Retail Industry Awards Dinner. This event has emphasized the importance of North Carolina foods throughout the retail industry of the state.



This display depicts the activity of North Carolina in World Trade. It is displayed at fairs and shaws across the state.

MUSEUM DIVISION

WILLIAM L. HAMNETT

Director

INTRODUCTION

A museum is of no more value than the service it renders, and we feel that our program and the progress made during the biennium attest to the people of North Carolina this value. During the biennium, the museum kept abreast of the burgeoning public awareness of its posture in the biotic complex as accentuated through three key words — ecology, environment, and pollution.

As a division of the Department of Agriculture for 90 years, the museum reaffirms the mandate to “keep a collection to illustrate the agricultural and other resources and the natural history of the state”, and to care for, and make available to the people of the state, the natural history collection which the state has entrusted to it.

Several innovative programs were initiated that proved successful. One in particular was the North Carolina Wildlife Artist Group Show. The public was given the opportunity to see excellent art work, done by resident artists, in which birds, mammals and flowers were used.

The museum was honored by the State 4-H Club office in being chosen as a part of their program of visitation during 4-H Club Week.

These have been years of contrast — from the burying of a pigmy whale on the coast, to be exhumed later, to answering the request, “Please send me everything you have.”

The State Museum teaches about real things, which is one reason why people enjoy coming here. At a period when everything is “instant”, the museum reminds one that time is still an ingredient of existence.





This innovative program of wildlife art proved quite popular with visitors who were amazed with the detail and subject matter.

EDUCATION

One of the major activities of the museum was to provide educational opportunities and services to the people of the state. A natural history museum is one place where man should be able to recognize his role in conservation of natural resources. Seeing, touching and hearing about our state's resources are of immeasurable value to our visitors.

Few opportunities were missed to have a chance to talk about the museum and its function, as speakers were in demand for civic clubs, garden clubs, church groups, and teacher workshops.

In order to tell better the museum story, a 25-minute color movie is in the process of being prepared for state-wide distribution.

The Curator of Education served as a natural history consultant in advising county school systems on curriculum construction. Many conferences with school personnel were held on the most efficient way to use the museum as an educational experience.

Lectures and guided tours were provided for school camps and rehabilitation groups at Board of Juvenile Correction camps.

Students from Wayne Community College and from Western Piedmont Community College were given a short-course in the

preparation of bird study skins; in how to curate a collection; and in museum exhibit techniques.

The audio-visual materials prepared and provided by the education section were in constant use. The traveling exhibits were in great demand — 2,490 were shipped out. Over 8,800 slides were requested and 439 film strips were used.

Five radio programs were presented and five television shows were given.

During the summer months of 1969, a museum visitor survey was conducted. The respondents were volunteers or casual visitors — not with organized groups or school classes. From this survey we learned that forty-four percent were making their first visit to the museum; twenty-five percent came for the first time when their school class visited; and thirty percent came for the first time with their family years ago. Of the total, over half of the visitors planned to spend at least one hour. The majority came to show the museum to children or friends, or to have something to do. Seventy-five percent of the respondents came for enjoyment, general information and knowledge.

Again, as in the past, the "teacher packet" of museum information sheets was extremely appreciated, and thousands were distributed.



How do they do it? An owl is striking a cotton rat but what keeps the owl suspended in flight?



The marine shells of North Carolina can better be seen in this visitor-activated exhibit.

ATTENDANCE

The guest attendance count totalled 419,820 - 162,757 of whom came in April and May, the popular time for school children to visit the government buildings in Raleigh.

There were 109 days when the number of visitors exceeded 1,000. The heaviest day was May 2, 1969 when there were 4,010. Groups varied in size from 10 to 140, and all but six counties of the state appeared on our registration sheet.

The attendance chart not only shows the relative number of visitors throughout the year but indicates the week-end attendance, which is composed of primarily of family groups.

Group attendance during the biennium was as follows:

	<i>Groups</i>
Colleges	42
Senior High School (10-12 grades)	289
Junior High School (7-9 grades)	3,449
Elementary School	2,546

Kindergarten and Headstart	276
Scouts	353
Church Organizations	100
Hospitals	75
Miscellaneous	500
(Insert Chart)	

Among the miscellaneous groups were such visitors as 4-H Clubs, FFA Chapters, YMCA's and YWCA's, School for the Blind and Deaf, Golden Age Clubs, and dignitaries from foreign countries visiting the department and other state offices.

EXHIBITS

A total of 129 travelling exhibits are available for distribution, upon request, to schools, clubs and camps. These were developed for a better appreciation of the world of nature by those students who were not likely to have an opportunity to visit the museum.

The Lula Upchurch Memorial Shell Collection exhibit was constructed and put into operation. This is a visitor-activated display that illustrates the different kinds of marine shells indigenous to North Carolina.

An exhibit, "North Carolina's Choice" was prepared to show the state bird, flower, tree, seashell, and mammal.

An ecological exhibit that cleverly shows a barred owl in flight, ready to pounce on a cotton rat, was placed on the floor.

Because of the particular color phase and surroundings in which the pigmy rattlesnake is found, an exhibit, showing the typical habitat of this limited area, was prepared and displayed.

In the interest of needed space, some exhibits were combined to eliminate display tables and cases.

Much of the old farming machinery and tools were transferred to the State Fair Division for their use in the proposed Farmer's Museum.

The halls and exhibit cases were painted in matching colors, which helped to divide the contiguous subject areas.

COLLECTIONS AND ACCESSIONS

Both the research and the study collections were augmented this biennium. More time was spent in field trips, and donations were more frequent.

During the first quarter of the biennium, 945 lots, or approximately 14,000 specimens, of fish were catalogued. During the biennium nine more fish collections (3,500 specimens) were received and catalogued, so that now the fish research collection has in excess of one-quarter million specimens, representing all but a very few species indigenous to the fresh waters of our state.

The research collection of amphibians and reptiles now has at least one specimen of each species to be found in North Carolina. Emphasis has been placed on herpetology so that the forthcoming book, *Herpetology of North Carolina*, can be well documented with state records.

Through a mutual agreement, the bird study-skin collection from the Zoology Department at N. C. State University was transferred to the museum collection. The two collections combined now serve as a laboratory study for students and as a research collection for the museum.

Among the unusual and rare specimens collected, the most conspicuous was an Audubon's Warbler, taken in Rocky Mount. This was a first for our state. Several species of birds, common in other areas of the state but considered rare in the museum area, were collected.

The botany program, basically the establishment of an herbarium prior to specialization, moved slowly through the biennium. The curator of botany resigned to return to school. A doctoral candidate, Mr. Robert Downs, reported June 1 to be curator of botany and his collections and identifications materially affected the program.

During the biennium the following accessions were made: Geology 4 (4 specimens); Archeology 9 (84 articles); Botany 2 (750 specimens); Vertebrates 168 (7,580 specimens); Ichthyology 9 (3,500 specimens); Herpetology 118 (3,100 specimens); Zoology 169 (7,590 specimens); Invertebrates 1 (10 specimens); Ornithology 23 (950 specimens); and Mammals 18 (30 specimens).

Since a museum serves as a repository for many items not generally obtainable elsewhere, it is called upon at times to help in special assignments when the need arises. For research and other uses, loans were made as follows to:

Cornell University	208 fishes
Louisiana State University	1 snake
Charleston (S. C.) Museum	3 frogs
University of Arizona	79 snakes
Duke University	6 mammals
University of N. C.-Charlotte	93 fishes
Southern Illinois University	8 mammals

The following gifts and transfers were recorded:

Northeastern Louisiana State College	44 amphibians and reptiles
Smithsonian Institute National Museum	22 snakes, 6 turtles
Carnegie Museum	2 snakes
Staten Island Zoo	4 snakes
American Museum of Natural History	12 lizards and snakes

PUBLICATIONS

Birds of North Carolina, published through the Museum Extension Fund, has been sold out and there are no immediate plans to republish it. Two other publications, *Poisonous Snakes of Eastern United States* and *Freshwater Fishes of North Carolina*, are paid for by this fund and are still available and many copies have been sold.

The following materials, published by other state agencies, were sold (at cost) at the receptionist's desk for the convenience of visitors:

Indians of North Carolina
Forest Trees of North Carolina
Geology of North Carolina
Mineral Localities of North Carolina

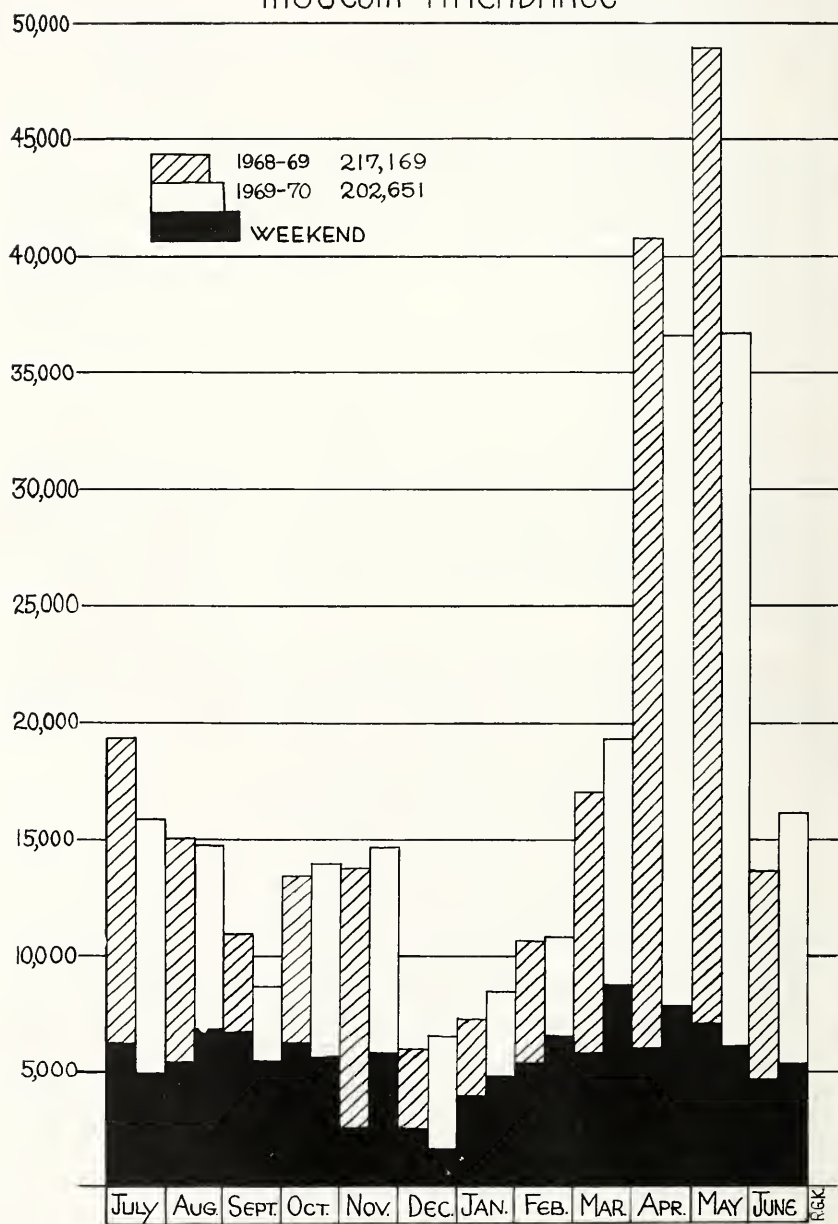
In addition, a selection of inexpensive natural history publications were available for sale also.

Thousands of teacher packets were distributed and individual information sheets were available on request.

The Museum Extension Fund was set up years ago by Mr. Harry Davis, Director Emeritus, who still serves as treasurer. The present assets of the Fund, on June 30, 1970, were as follows:

In savings	\$20,346.88
In checking	648.04

MUSEUM ATTENDANCE



During the biennium the museum was represented at the following professional meetings:

Southeastern Museums Conference—Norfolk

N. C. Museums Council—Charlotte, Salisbury, Chapel Hill

N. C. Shell Club—Raleigh (2)

Association of Science Museum Directors—Los Angeles, New York

American Association of Museums—San Francisco, New York

American Society of Ichthyologists and Herpetologists—New Orleans

N. C. Education Association—Raleigh



The Hampton Marine Museum located in Beaufort is valuable not only to the schools in the area, but is visited by a great number of tourists.

HAMPTON MUSEUM

The Hampton Marine Museum, Morehead City, a branch of the State Museum, was open to the public from April through September during each year of the biennium.

For years the museum was located in a structure used primarily by the Commercial and Sports Fisheries Division of the N. C. Department of Conservation and Development. That building has recently been demolished to make way for a new structure. In order to continue serving the public, the Hampton Museum was relocated and opened April 1, 1970 in a rented building in Beaufort, North Carolina.

The attendance figures reflect the popularity and usefulness of the museum to this region of the state.

July, August, September 1968	10,053
April, May, June 1969	8,263
July, August, September 1969	10,433
April, May, June 1970	7,529

Not only was the museum sought by tourists but it was used considerably by school groups, church groups, private camps, scouts, Headstart programs, and ESEA.

PUBLICATIONS DIVISION

F. CARLYLE TEAGUE

Director

The Publications Division of the North Carolina Department of Agriculture is one which aids the functions of virtually all of the other 18 divisions in the Department.

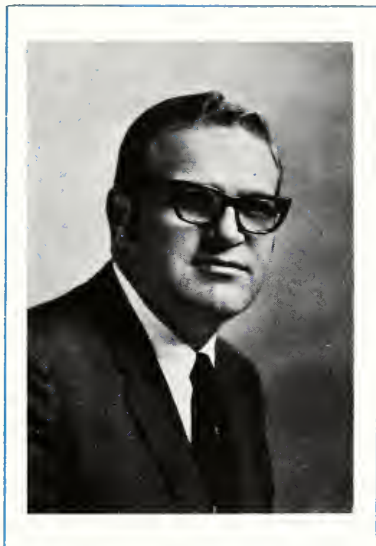
It is neither a regulatory nor a service organization in the strict sense of those words. Yet, it performs functions in both categories that assist both the ment and aids the department in services to the public, directly or through its regulatory efforts.

While its primary function is that of information dissemination, the division's work includes four major categories, each with its own numerously varied adjuncts.

Coupled with the multi-facated character of its work has been a continuation of the ever increasing tempo of new findings, regulations and services affecting agriculture and the ultimate consumer, and originating at both the state and federal levels. All these demand greater public attention.

The first category, direct dissemination of information to the public, takes the form of press releases, special articles and the publication of a semi-monthly paper, *Agricultural Review*. While the releases and special articles are read by hundreds of thousands, the *Agricultural Review* reaches a more well defined audience now numbering over 91,000 people, all of whom have a direct interest in the subject matter of most of the informational articles published.

During this biennium the *Review* has carried nearly 1,000 articles along with other information piecies to help farmers and consumers. In addition the *Review* has directly assisted farmers in their organizations with a free farm want ad service.



This service, with the ever-increasing cost-price squeeze in farming operations, has aided farm people tremendously.

The Agricultural Review cooperates to the fullest possible extent with other Federal and state agencies which have programs of interest to our readers, within the limitations of space.

From year to year there are continuing changes in Federal support programs, new Federal quarantines, new Federal requirements on the use of pesticides or levels of pesticide residues, new farm programs launched with the view of improving agriculture at the estate or regional level and similar matters all vitally affecting North Carolina farmers and consumers. These are all very much a part of the duties of this Division as information office.

Publication in the Review of violations of laws administered by the Department, where these can be summarized to fit into our limited space, prove to be a most effective tool in enforcement of the regulations.

Due to the increasing demands and urgency of many of these on the space in the Agricultural Review, additional funds obtained has permitted the Division to print 44 eight-page issues and only 5 four-page issues during the 1968-1970 Biennium. The letting of a new contract for the printing of the Review enabled the format to be increased to 11½" x 14" to allow more copy space with the increase in demands for ads. Yet keeping pace with the increasing demand on this paper is a perennial problem. Its mailing list is kept "live" in every sense of the word. Names are added only by direct request from individuals wishing to receive it and the list purged of names of those who do not themselves notify us of the change of address, leaving it to the Post Office Department to do so after a time lapse specified in the Postal Regulations. Yet the demands for this paper increase every year and indications of its valuable service to our readers continue to come to us by word of mouth and hundreds of letters of appreciation.

We have had to increase the printing of this publication from 87,000 at the beginning of this biennium to 91,000 as of July 1, 1970. And, of course, demand for "Farm Wants" space increases as the mailing list grows.

In every phase of its work, the Publications Division's responsibilities grow as demands upon the Department as a whole increase. In addition to new programs and responsibilities placed in the Department there are multiplying complexities within each

of these responsibilities as they relate to consumer services and regulatory programs. These, in turn, require an ever greater volume of work in the division's function not only as the information office but also in its service to the Board of Agriculture.

The second category of Publications Division work is acting as a clearing-house of information for the Department. This is a dual-purpose role, serving the Department's 18 divisions and the general public as an information center. In this category are many non-recurring services too numerous to list individually. Of a continuous nature, however, is the handling of thousands of requests for information which come to the Department each year by letter, telephone and personal visits.

In its capacity as a clearing-house, the Publications Division is called upon to prepare or correlate various special reports dealing with some or all phases of the Department's work. These often involve considerable research.

The division's third category of work ties in closely with the first and second. In rendering secretarial service to the Board of Agriculture, the division's staff keeps fully informed of not only the Department's service and regulatory programs, but of their background as well. This kind of knowledge of the history of Department programs, the steps in developing regulatory measures, and other such details is essential in our work as an information division.

In addition to keeping minutes of meetings, secretarial service to the Board include advertising and recording public hearings; coding, printing and filing regulations as required by law; maintaining a master set of all regulations and responsibility for revising and reprinting the various chapters from time to time. A corollary responsibility is the printing of laws administered by the Department, after checking them with the statute books to embody amendments enacted from time to time by the General Assembly.

The technical complexities involved in so many of the Department's regulatory responsibilities have necessitated appointments of numerous special committees to explore the needs and make recommendation for regulatory amendments to the Board of Agriculture. Publications Division staff members must attend most of these meetings to be sufficiently informed to help properly prepare and code the regulations when presented. We must also prepare news releases on developments, so that those con-

cerned will be fully informed when these matters are discussed in public hearings.

The fourth category of activities of this division is editing and printing departmental publications. In addition to Agricultural Review, this includes a series of four bulletins each year, three of which report, respectively, on the inspection and analyses of feeds, fertilizers and insecticides in connection with the Department's enforcement of laws covering these materials. The fourth is a market report on tobacco.

PUBLICATION DIVISION NEEDS

As stated earlier, demands on this division increase in direct proportion to increased responsibilities placed in the Department of Agriculture, and to a marked degree in proportion to increasing complexities in agricultural programs of other agencies. As a result, the work of the Publications Division has tripled in the past 14 years without any increase in permanent personnel. The demands have been met by sacrifices on the part of the entire staff, who have worked overtime, taken leave only a day or two at a time and continuously exerted themselves to the utmost limit.

The division has two items in its budget request which will help to relieve some of this heavy overload. One is for an additional secretary, which will not only help to relieve an overload on the present secretary, but will also relieve the director and assistant director of some clerical duties which they must perform because the one secretary now in the division has more than she can do.

The second request is for an additional Communication and Information Specialist II. Currently, there are only two writers on the Publication Division's staff and it is impossible for these two to keep pace with the informational needs of the public concerning this Department. The importance of better and broader communications is sharply high-lighted by the growing need of the public to know more about the many consumer services performed in this Department. There is a great need for one staff member to be able to devote a considerable portion of time to the needs of the audio visual news media who are urgently interested in carrying information on the Department's work and whose needs require some highly specialized qualifications.

The division is also badly in need of a court reporter to aid in the work of secretary to the Board of Agriculture and the meetings and hearings of the other boards, committees and commissions falling within the Department of Agriculture.

The work of the Board of Agriculture by itself has become sufficiently complex that this reporter is badly needed to insure proper recording of rules and regulations adopted by the Board.

This work is too complex and involved to relegate to the information staff of the Department without more help.

The information functions of the Publications Division are growing in importance. Members of the press, civic groups, individuals in all kinds of occupations are each year actively seeking information on agriculture and the work of this Department in increasing numbers. The growing realization of agriculture as a foundation of a great multiplicity of industries increases the need to know and the number of people who need knowledge. This division's budget request must reflect its responsibility for meeting the need.

DIVISION OF RESEARCH STATIONS

CECIL D. THOMAS

Director

INTRODUCTION

The Division of Research Stations has the role of operating 16 outlying research stations in various sections of North Carolina. These stations were located initially according to type of farming areas or because of some specific problem needing consideration. Generally most of the broad type of farming areas and even belts, as with flue-cured tobacco, are represented by this group of stations.

Nine of these units are budgeted in the Department of Agriculture and seven in the North Carolina State University Agricultural Experiment Station.

This provides for a joint undertaking of a major program with the Department of Agriculture furnishing management and the Experiment Station furnishing technical guidance and supervision of research projects conducted on the stations.

In its role of operating the outlying stations the division deals with a wide range of matters including budget development and management, personnel, the development of buildings and facilities, procurement of supplies and services, and in reality all business aspects required of such an operation. Each station has a resident manager or superintendent with a small corps of operating personnel, supplemented by temporary labor required during busy seasons of the year. This group at each station has the responsibility for carrying out all farming and research operations on the respective units.

SIGNIFICANT DEVELOPMENTS

In support of a changing agriculture it is natural that there would be many new developments on the different stations for any given period of time, because in order to adapt research to the needs of the times changes must be made.



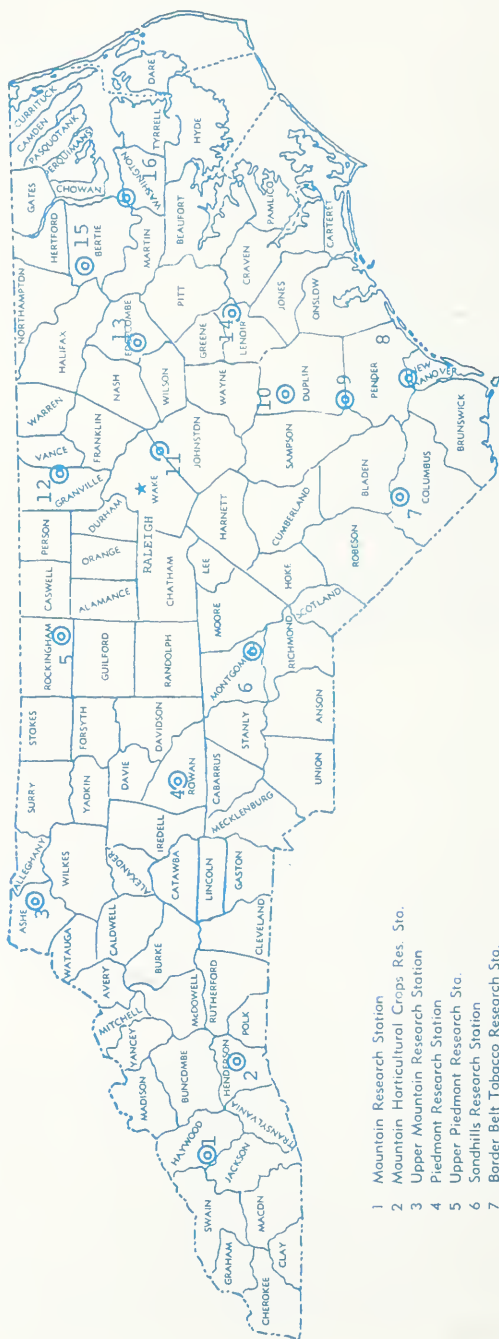
In meeting the needs of the times a study was initiated several years ago to look into the acquisition of a new station in south-eastern North Carolina, and the consolidation of two of our present stations into this new operation. During the biennium a tract of land consisting of 349 acres was purchased, two and one-half miles northeast of Clinton in Sampson County. The Coastal Plain Vegetable Research Station, at Faison, will conduct its operations on the new farm in 1971. Other work will be gradually integrated into this program. The new station will be primarily for vegetable crops, but will also have sweet potato research, work with small fruits, including grapes, strawberries and perhaps blueberries, and in addition other lines of work may well be included in the total research program.

A brief review will be made of significant developments by stations in the system, and first of all mention will be made of the Border Belt Tobacco Research Station, at Whiteville in Columbus County. Capital improvements during the period were limited, however, a 20' x 60' general storage building was constructed on an old greenhouse foundation providing needed storage space for many supply and material items. The program at the station deals with all aspects of flue-cured tobacco production, however, significant is that it included a harvesting system study to help resolve the number of harvests needed for a crop and a fertilizer study to find if calcium nitrate can be used in the growing of tobacco in place of sodium nitrate.

At the Horticultural Crops Research Station, Castle Hayne, there was considerable increase in research with blueberries. Additional land was leased and approximately ten acres were cleared for work with this important small fruit crop involving the testing of species, spacing, research with disease and soil problems and other kinds of research. In addition, new facilities in the form of growth chambers were added and additional personnel was assigned to blueberry work.

The Coastal Plain Research Station, at Willard, has for a long while been considered as the primary station for strawberry research, and an important development here during the biennium was the release of two new varieties, the Atlas and the Apollo. Research in developing these new varieties was centered at this station. Dairy research at the Coastal Plain Station had been conducted for approximately 60 years, however, in 1970 the dairy work was being phased out with the idea that most of this research could be done with herds at Raleigh.

LOCATION MAP
RESEARCH STATIONS
N. C. State Univ. Agric. Expt. Station
N. C. Department of Agriculture



- 1 Mountain Research Station
- 2 Mountain Horticultural Crops Res. Sta.
- 3 Upper Mountain Research Station
- 4 Piedmont Research Station
- 5 Upper Piedmont Research Sta.
- 6 Sandhills Research Station
- 7 Border Belt Tobacco Research Sta.
- 8 Horticultural Crops Research Sta.
- 9 Coastal Plain Research Station
- 10 Coastal Plain Vegetable Res. Sta.
- 11 Central Crops Research Station
- 12 Oxford Tobacco Research Station
- 13 Upper Coastal Plain Res. Sta.
- 14 Lower Coastal Plain Tobacco Res. Sta.
- 15 Peanut Belt Research Station
- 16 Tidewater Research Station

The Coastal Plain Vegetable Research Station, at Faison, continued its program of work with variety testing, weed control, mechanization of harvesting, and other lines of work relating specifically to vegetable crops. Progress was made in all areas.

The Lower Coastal Plain Tobacco Research Station, at Kingston, installed a new plant bed irrigation system which helps to insure good plants for use in the research program. This station still serves as a major eastern belt location for testing and evaluating some 450 tobacco breeding lines annually.

At the Upper Coastal Plain Research Station, Rocky Mount, a number of new facilities were put into operation during the biennium including a small office building, two workers dwellings, a fertilizer and pesticide storage building, a bulk tobacco curing barn and a beef cattle building and related facilities to assist with this research program. A new cattle research program was initiated during the biennium designed to test the value of cross-bred dairy and beef heifers for the production of meat animals. Also with much emphasis on pollution, a water run-off study was started in 1968, which is now furnishing valuable information on pesticide residues in ground and surface water. This is a long range study and will continue to give essential information to agriculture and health personnel.

The Peanut Belt Research Station, in Bertie County, points with pride to the development of an irrigation system based upon deep wells which when completed will provide for the irrigation of about one-half of the station's 229 acres of cropland. The system was used for the first time during a drought in the spring of 1970. Also during this biennium a foreman's dwelling was completed.

In addition to the usual research and farming operations the Tidewater Research Station, at Plymouth, sold timber from and cleared 40 acres of land which has been ditched, limed, and fertilized for use in permanent pasture. This provides a total of approximately 465 acres of open land on the station and completes the clearing of all land included in the main body of this research station. During the period there was initiated a land-forming water-control experiment in which eight acres of land were leveled and ground water level measurements on a continuous basis are being taken during the cropping season. This study will be expanded next year.

A major development at the Oxford Tobacco Research Station during the period was the completion of a USDA tobacco re-

search laboratory building. This building was finished in 1969 and has been put into use. One experimental bulk curing tobacco barn is being rebuilt, due to the fact that there was a fire loss in August 1969.

A major development at the Central Crops Research Station, Clayton, is an addition to facilities for the swine evaluation station. This project has proven to be so successful that it became necessary to double the capacity for this project. An intensive program of work was conducted with horticultural crops, various other field crops, and in addition much work was done at this location on the mechanization of tobacco harvesting. Also work was accomplished in the mechanical harvesting of other crops including a mechanical sweet potato harvester.

The Sandhills Research Station, in Montgomery County, reports the planting of 50 additional acres of peaches for use in the breeding program and for other research work. During this period six new peach varieties were released and work in developing them was centered at this station. New peach varieties are Whynot, Pekin, Troy, Norman, Biscoe, and Emery.

The Piedmont Research Station, in Rowan County, reports completion of the Tenth Poultry Random Sample Laying Test in August 1969. The eleventh test was, of course, underway at that time since there is an overlapping of the numbered tests. Significant is the international aspects of these tests since for the twelfth test, which was started in 1970, there were three overseas entries. This was in addition to a wide range of entries from throughout the United States. Beginning with the twelfth test there was a major change in facilities in that a slat floored house was replaced with a cage system for handling the birds. In 1969 three new irrigation ponds and considerable irrigation equipment were put to use during the dry year. This irrigation was very important to establishing new pastures and new strains of alfalfa. In addition, new feeding facilities for beef cattle were first used in 1969 and also expanded research facilities for the dairy unit were put into operation.

A significant development at the Upper Piedmont Research Station, in Rockingham County, during the period was that a majority of the woodland area on the station had been studied and the timber marked and during the biennium the timber harvest was almost completed. In addition to harvesting the timber this operation permitted a continuation of adjusting field boundaries and reshaping many cleared land areas on the station. Facilities including irrigation, beef cattle feed barn, silos, a fertilizer and equipment storage building, which were pro-

vided for during the previous biennium, were completed and put into full use during the 68-70 period.

The Upper Mountain Research Station, in Ashe County, had no capital improvements during the biennium, however, major improvements to the station were made in land drainage, improvement to farm roads, and in fence construction. Approximately 1,500 rods of new fencing were erected of which about one-third is of the new suspension type. A new sheep barn was completed at the close of the previous biennium, however, initial use was begun in the 1968-70 period and this facility has allowed expanded research with sheep. During the past two years beef cattle research at this location has been in a transition state from studies relating to feeding and management of stocker cattle to research designed to acquire new knowledge relating to brood cow and calf management. In the way of forage crops, important work has been done in testing new strains of alfalfa for resistance to the alfalfa weevil. Also new seedings of crown vetch and Birdsfoot trefoil have been made to evaluate their use as pasture plants.

The Mountain Horticultural Crops Research Station, at Fletcher, put into use during the past biennium a cold storage and grading building which is used primarily for cold storage studies of fruits and vegetables. A new eight-acre planting of apple trees was made and this new orchard will be devoted primarily to studies of cultural practices and root stock systems. Another new experiment was research with celery, and so far this crop has shown some promise and at least one commercial planting of celery in the area is planned for 1971. Plant introductions of potatoes from South America are being observed for their ability to form tubers under the day length and other growing conditions in this location. Ones that will form tubers will provide an almost unlimited supply of genetic material for the potato breeding program.

The Mountain Research Station, Waynesville, reports in the way of capital improvements, the completion of a new dwelling for a dairyman, and the erection of a 3,250 bushel capacity grain bin. In addition, the fertilizer and pesticide building was finished according to the original plans by installing partitions and providing two extra rooms to store pesticides. Also a new automatic feeder was installed in the milking parlor. A significant development in the research program was an increased emphasis on research in trellised tomato production. Trellised tomatoes have become one of the more important crops in this part of the state and there is a great need to answer many questions relative to



New office building — Upper Coastal Plain research station, Rocky Mount.



Burley tobacco plant beds and barns — Mountain Research Station, Waynesville.

the production of this crop. Also the TVA-NCSU cooperative research program took on new emphasis with attention being given to pollution studies with herbicides and fertilizers. There are two small watersheds on the station which have been used for run-off studies for many years, and by making certain alterations both watersheds now accommodate a new automatic water sampling system. Samples are sent to the pesticide laboratory at N. C. State University for herbicide residue analysis, and to Muscle Shoals, Alabama, for fertilizer residue analysis. The basic purpose of this program is to determine if application of these materials contribute to stream pollution.

RESOURCES

The agricultural research program in North Carolina is conducted by the N. C. State University Agricultural Experiment Station and much of the basic research is done in laboratories and greenhouses, but certain parts of the program are conducted on the research stations and some tests and trials are carried out on farmers fields. The research stations contribute much to the total program and furnish many things which cannot be found elsewhere.

Land is the basic resource on the stations, and with the 16 stations located in various sections of the state, research scientists can find varying soil types, and various situations regarding elevation and other factors which insure that tests and experiments will be applicable to most parts of the state. A supply of land for field tests and experiments with crops and livestock is of great importance to the success of the total program. Land included in the 16 stations as of December 31, 1969, amounted to 7,209.6 acres owned by the state and in addition there were 157.0 acres rented. Total land involved in research stations both owned and rented amounts to 7,366.6 acres. In analyzing total land resources we find that cropland accounts for 2,305.9 acres and open pastures take up 1,103.8 acres. As under any farm situation there is a considerable acreage of woodland and a sizable acreage is used for roads, meadow strips, irrigation ponds, and building sites. However, in 1969 a total of 1,458.0 acres were used for research. This acreage of research reflects some of the most intensive use which can be made of land in a farming operation because an acre of research requires many more inputs of labor, supplies and equipment and general supervision

than the average acre of a commercial crop. Also as an indication of total resources of the stations there is the inventory which includes the value of land, facilities, equipment, and other items. As of December 31, 1969, the value of all property on the 16 stations amounted to \$3,915,013. Even with this high figure, land value, for the purpose of the inventory, was established at the initial cost, plus the value of improvements, and therefore does not reflect real estate values.

Another very important resource of the stations is that of personnel, involving those who supervise operations, such as the superintendents and the foremen, and the labor force including machinery equipment operators, and others employed for specific jobs. These people are the key to successful operation, and without competent supervisors and dependable labor it would be impossible to conduct the large amount of research which is carried out.

There is another resource so very important to the conduct of field experiments that it has received unusual attention over the past few years. The reference here is to water, and much time has been given to the development of irrigation facilities, including ponds, and in a number of instances deep wells for water supplies. This resource is an important research tool because even though everything else may be supplied, a dry year without adequate water can cause great losses to the research program and in fact it may set back certain lines of research for a number of years.

RESEARCH PROGRAMS

Although the State Department of Agriculture is not a research agency it seems advisable that in this report a brief statement be made as to the lines of research conducted at each station. This brief simply gives an indication of the kinds of research without involving details as to research programs. The principle work at each station is as follows:

BORDER BELT TOBACCO STATION: Tobacco (varieties, cultural practices, sucker control, fertility studies, tobacco genetics, insect and disease control, plant bed studies) and new crops.

HORTICULTURAL CROPS STATION: Vegetable crops (breeding, new introductions, cultural practices, disease and insect control), bulbs (breeding, cultural practices and storage), blueberries and ornamentals.



Rabbiteye Blueberries at the Horticultural Crops Station, Castle Hayne.

COASTAL PLAIN STATION: Poultry, dairy, pasture and forage crops, muscadine grapes, strawberries, corn hybrids, soybeans, sweet potatoes, and special new crops.

COASTAL PLAIN VEGETABLE STATION: Vegetable crops (varieties, cultural practices, insect and disease control, mechanization processing qualities), blueberries and strawberries.

LOWER COASTAL PLAIN STATION: Tobacco (varieties, disease and insect control, cultural practices, plant bed studies), corn and small grain.

UPPER COASTAL PLAIN STATION: Corn hybrids, cotton, soybeans, tobacco, peanuts, small grain, grain sorghum, forage crops, hogs, beef cattle, weed control and special new crops.

PEANUT BELT STATION: Peanuts (breeding, rotations, fertility studies, pesticides, insect control, seed quality, weed control, growth regulators, variety verification trials, and disease control), corn (breeding, genetics, fertility and lime and tillage), cotton (breeding, weed control, fertilizer-pesticide interactions).

TIDEWATER STATION: Forage crops, corn hybrids, soybeans, small grain, Irish potatoes, other vegetable crops, muscadine grapes, beef cattle and swine.

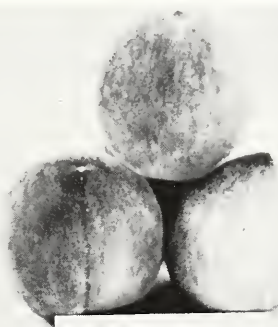
OXFORD STATION: Tobacco (breeding, variety tests, cultural practices, plant bed management, disease and insect control, curing studies, irrigation), tomatoes (wilt studies).

CENTRAL CROPS STATION: Corn breeding, cotton, soybeans, tobacco, peanuts, small grain, forage crops, special new crops, vegetable crops, orchard (apples, peaches, pears), brambles (raspberries, blackberries, dewberries), muscadine grapes, tobacco plant bed studies, irrigation studies, mechanical tobacco harvesting, peanut harvesting, corn drying studies, and swine evaluation.

SANDHILLS STATION: Peaches, apples, muscadine grapes, and special new crops. Work is underway on varieties, cultural practices, insect and disease control, soils, irrigation, grading, storage and packing of fruits.



WHYNOT



PEKIN



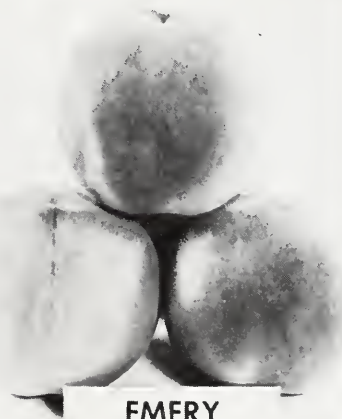
TROY



NORMAN



BISCOE



EMERY

New peach varieties released in 1968 — Sandhills Station, Jackson Springs.

PIEDMONT STATION: Small grain, corn breeding, cotton, soybeans, special new crops, forage crops, orchard, dairy cattle, beef cattle, and poultry random sample test.

UPPER PIEDMONT STATION: Tobacco (varieties, cultural practices, insect and disease control, plant bed studies), and beef cattle (breeding and management studies).

UPPER MOUNTAIN STATION: Beef cattle, sheep, burley tobacco, corn breeding, pasture and forage crops, and potatoes.

MOUNTAIN HORTICULTURAL CROPS STATION: Vegetable crops (fertility, varieties, cultural practices, disease and insect control, processing qualities), orchard and vineyard (varieties, fertility, insect and disease control, dwarf rootstock studies with apples). Also there is work with celery, strawberries, blueberries, raspberries, and mechanical harvesting of vegetable crops.

MOUNTAIN STATION: Dairy, burley tobacco, corn breeding, small grain, pasture and forage crops, orchard (apples) hydrologic studies (TVA), trellised tomatoes.

SERVICE FUNCTIONS

Although the outlying stations are basically designed for research, each of them perform certain service function to agriculture which add to their usefulness. In the way of service or education during the past year or so a number of the stations had what is termed 'Research Reviews' largely for personnel of the Agricultural Extension Service. In these reviews personnel of the extension service, largely county workers, spent several hours at a given station for hearing an explanation of research underway by the research project leaders. The thinking is that these people becoming better acquainted with research will be better able to translate research findings to farmers in their counties.

TABLE I. IMPORTANT DATA ON RESEARCH STATIONS

STATION	COUNTY	SUPERINTENDENT	YEAR ESTABLISHED	ACRES OF LAND OPERATED	ELEV. (FT.)	AV. ANNUAL RAINFALL (INCHES)
Border Belt	(NCDA)	Columbus	1949	102.0	95	51.20
Central Crops	(NCSU)	Johnston	1936	495.4 (1)	350	51.89
Coastal Plain	(NCDA)	Pender	1905	411.5	51	48.97
Coastal Plain Veg.	(NCSU)	Duplin	1949	55.0 (2)	160	49.52
Horticultural Crops	(NCSU)	New Hanover	1947	73.0 (3)	10	56.62
Lower Coastal Plain	(NCSU)	Lenoir	1948	87.2 (4)	70	47.84
Mountain Hort. Crops	(NCSU)	Henderson	1949	220.5 (5)	2,147	50.25
Mountain	(NCDA)	Haywood	1908	388.5 (6)	2,800	45.92
Oxford	(NCDA)	Granville	1912	305.7	500	45.36
Peanut Belt	(NCDA)	Bertie	1952	366.0	50	48.92
Piedmont	(NCDA)	Rowan	1903	1,054.0	800	48.00
Sandhills	(NCSU)	Montgomery	1940	517.9	730	46.92
Tidewater	(NCDA)	Washington	1912	495.5 (7)	15	53.34
Upper Coastal Plain	(NCDA)	Edgecombe	1902	441.9	100	47.29
Upper Mountain	(NCSU)	Ashe	1944	420.5	3,300	53.39
Upper Piedmont	(NCDA)	Rockingham	1948	868.0	830	43.37

(1) Includes 10a. rented; (2) 55.0 a. rented; (3) 13.5 a. rented; (4) 4.0 a. rented outlying plots; (5) 37.0 a. used as if owned; (6) 34.2 a. used as if owned; (7) 1064 a. additional owned.



The new Tobacco Research Laboratory — Tobacco Research Station, Oxford.

Also school and college classes make use of the stations by visiting, observing, and studying general programs or in some instances specific lines of work having a bearing on the courses of study of that particular class. The stations serve as field laboratories for these and similar groups. Other groups using the stations would include 4-H Clubs and FFA Chapters, who in many instances use livestock on the stations in training programs for judging teams. Also these two groups in some instances use crops and perhaps even soils as a part of their training program. In addition a number of special groups visit the station and this would include civic clubs, and other organizations of the same general nature who desire to become better acquainted with agriculture.

During a given year approximately 15,000 people visit the 16 stations either as organized groups or as individuals, and included in this total there is a rather large number of foreign visitors. In many instances when personnel from N. C. State University have visitors from foreign countries they quite frequently take advantage of the situation by having these people visit the outlying stations to observe the field work of the experiment station.

There are a number of instances in which certain small plots are planted on the stations for verification and identification work. The tobacco seed committee, for example, has plantings of tobacco for observation in order to verify or identify the varieties to be released. Plantings have been made of discount tobacco varieties so that ASCS personnel in the flue-cured area could learn to identify such varieties.

In the way of livestock, the swine evaluation station at the Central Crops Research Station is in reality a service function in that it provides for performance testing of pigs from litters which indicates comparisons of certain strains of swine. The Random Sample Poultry Test at the Piedmont Station, although providing considerable research information is primarily a service function for evaluating different lines of poultry for the major poultry breeders in the country. Here again this is really performance testing of these different lines. All in all the outlying stations perform many educational and service functions in addition to their primary role of research.

SEED TESTING DIVISION

GEORGE E. SPAIN

Director

"First, the seed" is a slogan often used for advertisements or promotional information about seeds. Without seeds, we would grow only those plants that could be propagated asexually. By a large majority, the field crops, vegetables, flowers, and tree species used for man's economic gain start with seeds. The use of F_1 hybrids, so popular in crops, vegetables, and flowers are based upon cross-pollination and combining the parental contributions through the mechanism of seed production. Agriculture, as we know it today, could not continue without seeds.



ANALYSES

Ideally, planting seeds would be 100 per cent pure seed of the designated kind and variety, with 100 per cent viability at maximum vitality. This condition, for practical purposes, seldom exists. Therefore, analyses to estimate planting qualities are necessary to screen out seed lots which are substandard and to provide information for labeling.

INSPECTIONS

Laws and Regulations require a complete and truthful label statement of planting quality to accompany the seeds, along with the identification of any contaminants. Therefore, inspections of seeds offered for sale and the analyses to check the truthfulness of the statements are necessary.

The viability of seeds is not a stable quality. It changes as a function of time, temperature, moisture, and bio-chemical and

genetic dictates of the species. Therefore, seeds must be periodically re-sampled and retested in order to confirm the maintenance of this quality or to inform the buyer of the most current evaluation. If not sold, the lot will eventually decline to such a level that it must be removed from sale.

SEED TREATMENT

Seeds treated with materials designed to improve their performance as planting stock must carry appropriate warnings, cautionary statements, and identification of material used. Therefore, constant surveillance is necessary to assure that proper labels and precautions about treatments accompany seeds.

VARIETY VERIFICATION

Variety purity is necessary if producers are to reap the benefits of research that goes into improved variety development. Therefore, field plantings to verify variety statements are necessary to guard against careless or uninformed statements of variety identification. These efforts are cooperative with N. C. State University personnel on tobacco, and during this biennium, they have been in cooperation with USDA on cowpeas, rye, and sorghum. The Seed Testing Division has variety verification plots of sorghum-sudangrass hybrids, grasses, and small grains.

For these reasons, and in the performance of duties statutorily assigned to the N. C. Department of Agriculture, the Seed Testing Division has carried out the activities listed in this report at the request of or on behalf of all citizens of North Carolina.

SUMMARY OF ACTIVITIES

Seed lots inspected, exposed for sale	38,075
Inspectors' samples submitted for further analysis	3,288
Total seed samples received	43,848
Total tests of purity & germination made on samples received	56,024
Biochemical tests performed	1,294
Variety verification samples collected and planted	314

SOIL TESTING DIVISION

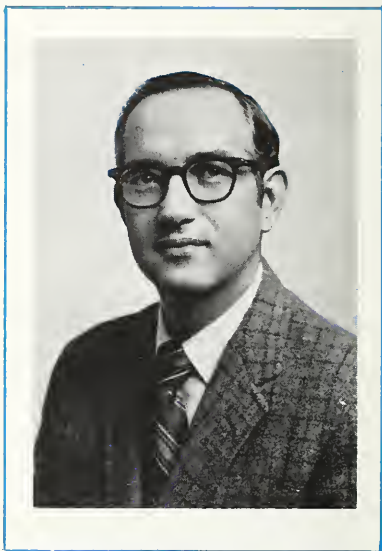
DR. DONALD W. EADDY

Director

Farmers of North Carolina have been caught in a cost-price squeeze. This unfavorable economic situation has caused them to consider all possibilities for increasing efficiency of production. As a result of increased concern for efficiency farmers have turned to soil testing as a means of achieving maximum economic yields while reducing the unit cost of production.

That North Carolina farmers have an intense interest in efficiency, and have realized that soil testing is an essential step to an efficient production program is demonstrated by the fact that during the 1968-70 biennium the Soil Testing Division processed 187,350 soil samples for 37,392 farmers. An additional 1,801 "problem soil samples" was processed for 964 farmers. These samples from "problem areas" receive special analysis and are handled by an experienced agronomist in order to get the results back to the farmer in time for the necessary corrective measures to be made as rapidly as possible. In some instances the suggested treatments of the "problem areas" are followed up with a field inspection. This follow-up allows the agronomist to stay in tune with everyday farming operations and problems, and determines whether his suggested treatment of the problem area corrected the plant growth problem.

In order to have a progressive and sound soil testing program, it is necessary for the soil test results and suggestions to be supported by the latest soil fertility research. Cognizant of this fact, the Soil Testing Division analyzed 6,764 samples during the 1968-70 biennium for the research scientist at North Carolina State University, Duke University, Wake Forest University and the University of North Carolina Chapel Hill.



During this biennium the Soil Testing Division performed almost one and one half million chemical determinations on close to 200,000 soil samples. To get maximum benefit from soil tests it is necessary that the soils be analyzed and the results be returned to the farmer and homeowner promptly. Consequently, a great deal of effort has been given to laboratory efficiency in order that we may process this large number of samples. Streamlining of soil handling techniques and use of rapid accurate analytical equipment has contributed to laboratory efficiency.

Perhaps, no phase of the soil testing program is more important than the informational or educational program. Each month news releases are submitted to the county extension chairman of each county for use in his local program. Additional news articles and radio programs have originated in the division.

These "news" releases always emphasize the why rather than the what of the subject. The importance of a sound fertility program and how soil testing is an integral part is always emphasized. We feel that more reliable samples have been submitted to the laboratory as a result.

Soil tests results and attendant data have been summarized annually. Summaries on the county level have been distributed to the Agricultural Extension personnel in each county. Summaries on the county as well as the state level have been provided for use by the interested extension specialists. These summaries provide invaluable information in the preparation of educational programs by revealing the effects of past educational efforts and cultural practices. Present fertility problems as well as potential problem areas are brought to light. Consequently, higher yields and increased net income is made possible by highlighting the fertility bottle necks.

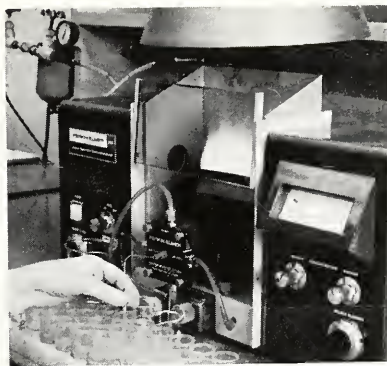
During the past biennium many fertilizer and chemical companies have forseen the value of soil testing as a service to farmers. Many have used the farmers soil test report from the North Carolina Department of Agriculture laboratory to plan a fertilization program with the farmer. Some have found it desirable to establish their own laboratories. A voluntary certification program was developed with the Department of Agriculture to work closely with these laboratories to assure that their soil analysis and recommendations will be in line with the research findings of the North Carolina Experiment Stations. One fertilizer company laboratory is presently certified under a program of cooperative exchange of ideas and continual cross checking of



An efficient handling procedure with synchronized operations have eliminated long delays in getting test results and treatment suggestions to North Carolina citizens. Above: Technicians Wilder and Humphries sort the soil samples on their way "by the numbers". Left: Chemist Bittle measures soil samples into containers in groups of 36 prior to the chemical "shakedown". Below: Chemist Johnson pours 12 of 36 samples into filters.



Right: A pH meter tells Chemist Bowling if the soil is too acid to grow plants.



Left: An electronic marvel — the atomic absorption spectrophotometer — uncovers calcium, magnesium and manganese needs in the soil.



Color density from chemical destruction of organic matter in the soil is measured with a colorimeter by Chemist Williams.



The electronic farmhand must be checked out occasionally. Systems Analyst Thomason checks report print out with Director Eddy.



Nutritional problems dominate the conversation as Agronomist Hatfield consults with Farmer W. W. Holding concerning trouble with soybeans.

analysis and recommendations. Two other laboratories are working toward certification.

The Soil Testing Division is recognized the world over as a leader in soil testing. Agronomist from many countries have visited the division during the past biennium seeking information on soil test methods and principles of soil testing. In addition, the laboratory has provided tours for the students of Soil Science at N. C. State University as well as commodity and farmer groups.

During this biennium it was found necessary to discontinue the analysis of silage, feed, and grain samples for farmers. It has been, and still is, the policy of the N. C. Department of Agriculture and the Soil Testing Division to promote and continue in only those programs in which there is a demonstrated need and demand by the farmers and consumers of North Carolina.

SOIL TESTINGS CONTRIBUTION TO A BETTER ENVIRONMENT

The Soil Testing Division is providing the concerned people of North Carolina with vital information and services needed not only to preserve but to create a wholesome environment. In addition to providing analytical services to the growers of food and fiber crops, the division offers and provides fertility and management suggestions to homeowners and managers of both public and private recreation areas. Fine turf and ornamentals now grow in residential and public areas where none would be growing without a diagnostic soil testing service.

A great share of the polluting agents in our water supply are a result of the excretory and discard wastes from our human and animal population. The degradation processes of nature disarm the pollutants if they can be held on the land long enough. There are more than 20 million acres of forage crops in North Carolina, many of which are under a continual nutrient requirement monitoring service provided by soil testing. Forage crops and well fed plants of all species help nature's cleansing recycling of all matter by physically trapping and displaying these pollutants for the action of the degradation processes.

The division, through its fertility and management suggestions, advise farmers and homeowners of proper rates, methods and timeliness of fertilizer applications thus minimizing pollution as a result of fertilizer use. These fertility and management suggestions also aid in the establishment of conservation practices which reduce erosion and thus stream and lake sedimenta-

tion which increases the overall usefulness of these bodies of water and enhances their beauty.

FUTURE NEEDS

One of the prime responsibilities designated to the N. C. Department of Agriculture is that of "service". In order to better fulfill this responsibility, it will be proposed to the 1971 Session of the North Carolina Legislature that an Agronomic Services Division be established. This division would offer increases in services in the area of Soil Testing as well as provide the following new services which presently *are not available* from any state agency.

1. *Extended Soil Analysis*: As efficiency of agricultural production increases, the need for special analysis on soils particularly for micronutrients and toxic elements will become necessary. Under the proposed plan it will be possible to analyze for any of the essential elements on a service basis as soon as satisfactory methods and correlation data can be developed.

2. *Plant Analysis*: The value of chemical analysis of plant parts in diagnosing plant nutrient deficiencies is well recognized the world over. As a supplementary tool for Soil Testing, this program will provide a service in which farmers can obtain a rapid diagnosis of problem areas and often make corrections in that year to prevent a complete crop loss.

3. *Nematode Assay*: Nematodes are one of the principle limiting factors in agricultural production. Not only are the yields frequently reduced, but the quality of the produce is often lowered by their damage. This tremendous loss to the North Carolina farmers was recognized by the 1965 Legislature and funds were appropriated to develop methods, and procedures (House Bill 528). It is felt that the development phase of this program has progressed satisfactorily so that the service aspect should be initiated in the Department of Agriculture. North Carolina State University will continue studies in the development of methods, procedures, and uses. The establishment of a Nematode Assay service in the Department of Agriculture would make it possible for farmers to determine whether expensive chemical control measures would be necessary before the crop was planted.

The Extended Soil Analysis, Plant Analysis and Nematode Assay program will be in addition to the present Soil Testing program of the North Carolina Department of Agriculture. It is suggested that the administration, profesisonal and technical

personnel and equipment be completely integrated into a Unified Soil Testing, Plant Analysis and Nematode Assay program to be known as the Agronomic Services Division of the North Carolina Department of Agriculture. A unified program would allow the director to shift personnel and equipment from one area of activity to another, based on seasonal demands, and substantially lower the cost of the program.

The establishment of such a division requires the construction of a laboratory building at a cost of approximately \$587,000 with some \$142,000 to equip it. (C budget). Sufficient space for the expansion of services is not available in the present Agriculture Building.

Some 13 additional permanent technical and clerical personnel will be required to operate this division. The increase in the operational budget (B budget) is estimated at \$165,000.

It seems desirable to help defray the cost of the operation of the laboratory through performing the Plant Analysis and Nematode Assay on a fee basis. The charge of fees will have the additional benefit of discouraging indiscriminate use of the services in those cases where no benefit will be derived from the analysis.

THE STATE FAIR

ARTHUR K. PITZER

Manager

"Progress," not only during the annual state fair, but involving the year-round use of the State Fairgrounds as well, explains the biennial success of the State Fair during this period.

Operating almost entirely out of its own revenue, the State Fair has witnessed small, but noticeable gains in various elements regarding the operation of this department and continues to keep its goal in sight, that of a yearly event that will provide an opportunity for all our citizens to participate either as an exhibitor or a visitor and to provide grounds and facilities

for events that provide recreation, education and entertainment.

For the first time the State Fair (1969) ran nine days and under a strict no-pass policy. The results were especially gratifying. Revenue at the gate, more than \$310,000 exceeded any total during previous years and despite the added costs of operating an additional three days and the discontinuance of parking charges, the annual profit for the department was more than \$145,000, exceeded only in 1967.

Increased use and revenue deriving from this use, has been accomplished during non-fairtime. A steady increase of the grounds and buildings usage has been recorded during the past two years and indications are that the forthcoming year will see more of the same. In 1968 the overall use of the grounds during the off season was unknown, but Dorton Arena was used 99 times. In 1969 the grounds were used 202 times and the use of the Arena swelled to 119. Activities already recorded for 1970 would indicate that the usage of the Fairgrounds will enjoy its busiest year. New multi-use contracts such as the Carolina





In-depth planning is the key to future development of the State Fair facilities.

Cougars, Country Shindigs and other coupled with annual returnees such as the horse show and the circus have resulted in the facilities being enjoyed by nearly 400,000 persons during the off season last year. Nearly two thirds of this number had been recorded by the end of the first half of 1970.

Some of the major improvements during this biennium include: the completion of the new administration building, the expanding of the restroom facilities, the edition of park benches and a new electrical system for fair time use, and new lighting around Dorton Arena. Also during this period, the grandstand race track was reconstructed, making possible the initial of a weekly racing program by outside promotion.

During the legislative session 100,000 dollars was approved for a new roof on Dorton Arena.

In 1964-66 biennial report, it was recommended that a "Use and Development Report," or "Master Plan," be completed for the fair. This is currently being accomplished. With the information provided by such a study and plan, the Department feels it will be better equipped to continue its task of providing the showcase of North Carolina for hundreds of thousands of its residents and in the best possible manner.

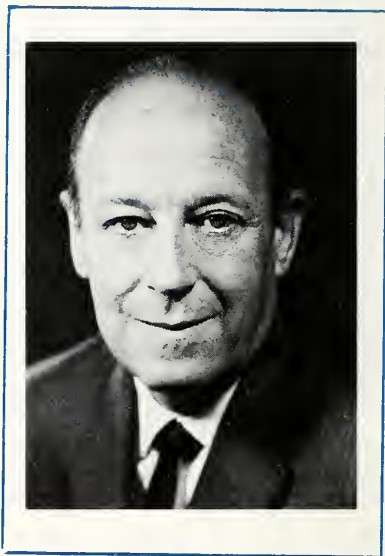
DIVISION OF STATISTICS

RUSSELL P. HANDY

Statistician in Charge

During the Biennium the Division of Statistics celebrated its Golden Anniversary of cooperation with the United States Department of Agriculture. For 50 continuous years the two agencies have combined their resources to provide a comprehensive agricultural statistics service to the people of North Carolina and the Nation. Since the USDA is charged primarily with making state and national estimates and the NCDA is further concerned with estimates for counties and local areas within the state, it is natural to work together to accomplish a common goal.

The two agencies, working in concert, are known as the Federal-State Crop Reporting Service. There are several advantages to this arrangement as has been demonstrated throughout the years. Among these are: (1) eliminates duplication of effort (2) reduces the burden upon respondents, or sources of information (3) provides consistency in definitions and concepts (4) prevents conflicting statistics being published which may cause confusion and (5) by working together economizes on expenditures.



SOURCES OF INFORMATION

The backbone of the Crop Reporting Service is its corp of volunteer crop and livestock reporters. These loyal farmers, processors and agri-business dealers report regularly on acreages, crop conditions, quantities produced and sold, numbers of livestock on hand, prices received and paid by farmers and many other items of a current nature.

A major source of statistical data is the *Annual State Farm Census*. The Division of Statistics provides leadership to the counties in the collection of individual farm reports covering operations on each farm tract of 10 acres or more. The census is taken in compliance with the farm census law and is the responsibility of the Boards of County Commissioners. Results of the State Farm Census provides the basis for revision of state acreage and livestock estimates previously established by the use of sample data and is the principal basis for the useful and popular series of estimates by counties.

NEW METHODS

Although the mailed inquiry has been a useful tool it is no longer totally adequate for measuring today's agriculture. With the decline in number of farms and the trend toward larger and more specialized farms it has become necessary to introduce a newer and more scientific approach to the collection of data. Probability sampling has been initiated in North Carolina as a part of the nationwide program for improvement of agricultural estimates. This involves two approaches in this state. The first is a scientifically drawn area type sample in which farm operators are interviewed during enumerations periods in June and December. The other is an objective yield or on-the-spot field survey made in specified months during the growing season for corn, cotton and soybeans.



Field enumerator points out samples segment on aerial photo preparatory to determining crop acreages in the sample area.

The June enumerative survey is designed primarily to estimate the acreage of crops planted, and the December survey concentrates on livestock numbers and fall seeded grains. The numbers reported in the area sample segments are expanded to state totals and measures of change from the previous years are computed.



Enumerator preparing to count the number of plants, nodes, blooms, and pods in a samples portion of a North Carolina soybean field.

The objective yield surveys consist of selecting random sampling units from the acreages reported on the June enumerative survey and making monthly visits to sample plots within fields. During the visits, counts are made of such items as width of row, number of plants, number of fruits, size of fruit and several other factors which have a correlation to the yield per unit. These counts are then worked into mathematical forecasting models and the prospective biological yield is determined. Surveys of harvesting losses are also made to assist in determining the net harvested yield per acre. The indications from these newer surveys are considered along with the traditional mailed inquiry and have resulted in improved acreage estimates and yield forecasts especially at the regional and national levels. Recent innovations in sampling now make it possible to compute measures of reliability for the crop estimates in a more scientific manner.

ORCHARD AND VINEYARD SURVEY

During the biennium a survey of orchards and commercial vineyards was completed with the assistance of the matching fund program of the Markets Division. It provided current statistics on the number of orchards with 100 or more trees being maintained for production. The numbers were broken down between varieties, age groups, and size of orchard. These data have proved essential to the orchardists in developing their production and marketing plans and in projecting future trends. The data were made available to all growers and others concerned with fruit production and marketing.

RETIREMENTS

During the latter part of the biennium the division lost both its long time chief and assistant chief. Henry L. Rasor and Olaf Wakefield decided to retire from government service after 42 and 30 years respectively. They each made great contributions to North Carolina agriculture and to progress in the Crop Reporting Service. We wish them well.

Replacing Mr. Rasor and Mr. Wakefield were Russell P. Handy and William C. Hinson. Both are native North Carolinians, experienced in crop reporting activities and both had been working with the Statistical Reporting Service, USDA, in Washington for several years. Mr. Handy is the third statistician in charge for North Carolina. Mr. Rasor succeeded Frank Parker, the founder of the service in this state.

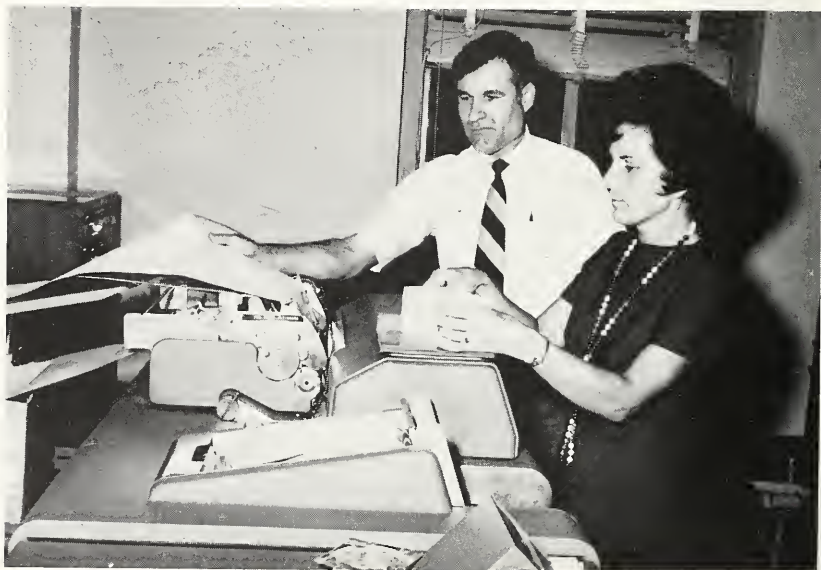
NEEDS

While the division operates a rather comprehensive statistical program for Tar Heel citizens, it is still not fully meeting the demands and needs for market information. There are three main areas that need greater development. They are improved accuracy, improved timeliness, and more complete coverage. As described above, scientific sampling procedures have been introduced as a start towards using methods designed to improve accuracy. Timeliness can be improved by extended use to telecommunications and automatic data processing. Progress has been made in this area but much remains to be done. More complete coverage calls for estimates for some crops not now included in the program, more items included in the county estimates program, and selected surveys of interest to specialty

groups. There is a need for a program designed to prepare estimates of farm income by counties. Discussions have been held with the Agricultural Extension Service and other agencies with a view to meeting this need.



Computers are becoming more important every year in the processing of statistics by the crop reporting service. These pictures show some of the activity.



MISSION AND OUTPUT

The responsibilities of the Division are service in nature as contrasted to the regulatory duties of several other divisions of the department. The program consist of a basic objective of making statistics regarding agriculture available to all who have a need for information concerning the state's agriculture. These include farmers, agri-businesses, marketing agencies, federal and state agencies, processors and handlers, marketing and transportation services, farm organizations, chambers of commerce, and consumers. The information output consists of around 450 separate reports each year. Many are compiled to be compatible with the National Crop Reporting Board activities so that the data can be combined with other states to arrive at United States totals. Data are usually released at a specified prearranged date and minute in order to provide equal access to everyone.

REPORTS AVAILABLE TO INTERESTED PERSONS

The output of the division is available to those specifically requesting the reports. The mailing lists consists of 922 different people who have requested one or more reports. In addition, during the biennium 7,043 individual requests were received and mostly fulfilled. These come by letter, telephone and personal visits to the office. Most respondents receive a state report on the items for which they report. Under the terms of the co-operative arrangement, the U. S. Department of Agriculture pays the postage for all mailings.

Supplementing the mailed reports, current information is also distributed as rapidly as possible to the mass news media. Immediately upon release of the reports, press releases are issued for the benefit of the wire services, daily and weekly newspapers, magazines, and radio and television stations. The coverage through these media is excellent, which reflects the interest and enthusiasm for information regarding our agricultural prospects and output. This of course, is natural considering our agricultural heritage and the continued importance of agriculture in our state's economy.

The schedule of regular reports is listed below. The most sought after report is the annual publication *Agricultural Statistics* which brings together the more important series of data including estimates by counties for major items.

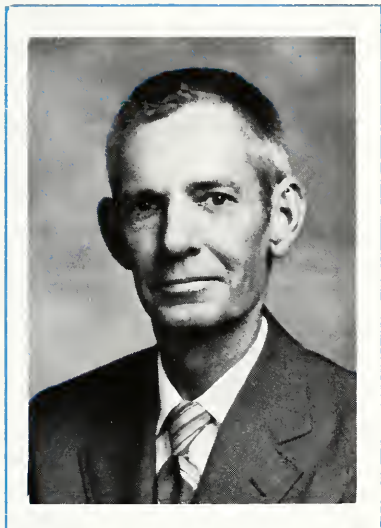
SCHEDULE OF REPORTS

<i>Type of Reports</i>	<i>Frequency of Report</i>	<i>Approximate Date Available in Raleigh</i>
I. Crop Reports		
1. Intentions to Plant	Annually	March 20
2. Farm Report	Monthly	12th of month
3. Cotton	July-December	8th of month
4. Vegetables	Monthly	10th of month
5. Crop Production, Disposition and Value	Annually	May 12
6. Grain Stocks (Farm and Commercial)	Quarterly	25th, Jan., Apr., July & Oct.
7. Annual Crop Summary	Annually	Dec. 20
8. Crop Values	Annually	Dec. 31
II. Livestock Reports		
1. Cattle and Milk Cow Inventory, Jan. 1	Annually	Feb. 8
2. Cattle & Calves on Feed, Jan. 1	Annually	Jan. 17
3. Calf Crop	Semi-Annually	Feb. 15, July 24
4. Pig Crop & Hog Inventory	Semi-Annually	June 25, Dec. 24
5. Sheep Inventory, January 1	Annually	Feb. 8
6. Lamb Crop	Semi-Annually	Feb. 21, July 28
7. Commercial Slaughter	Monthly	30th of month
8. Meat Animals - Farm Production, Disposition, & Income	Annually	April 27
III. Dairy Reports		
1. Cows Milked & Milk Production	Monthly	15th of month
2. N. C. Dairy Report	Semi-Annually	Feb. 15, Aug. 15
IV. Poultry Reports		
1. Poultry Inventory, Jan. 1	Annually	Feb. 8
2. Eggs, Chickens, Turkeys & Hatchery; Poultry Slaughter	Monthly	18th of month
3. Broilers	Weekly	Wednesday - P.M.
4. Turkeys Raised	Semi-Annually	Aug. 25, Jan. 29
V. Price Reports		
1. Prices Received by Farmers	Monthly	1st of month
2. Prices Paid by Farmers for Feed	Monthly	1st of month
3. Prices Paid by Farmers, Selected Items	Quarterly	1st Feb., May Aug., and Nov.
VI. Weather-Crops Reports	Weekly	Monday - P.M.
VII. Agricultural Statistics	Annually	Mid-June

STRUCTURAL PEST CONTROL DIVISION

RUDOLPH E. HOWELL

Director



The Structural Pest Control Division administers the North Carolina Structural Pest Control Law and rules and regulations governing structural pest control operations. The purpose of the law and rules and regulations is to protect the public, as well as the pest control industry, from those operators incapable of fair and ethical business dealings. Standards established under the authority of the law are designed to help weed out such operators.

The basic function of this division is to enforce compliance with the law and rules and regulations. The work required to accomplish this function includes: inspection of records, equipment and work of structural pest control operators; examining applicants for licenses; issuing licenses to qualified applicants; registering employees of license holders; and instituting court action against violators of the law.

All phases of structural pest control work are checked by inspectors of this division. Inspectors use soil testing field kits to see that prescribed concentrations of insecticides have been applied for the prevention and control of subterranean termites. Fumigation operations are checked to determine compliance with safety precautions. Periodic inspections are made on household pest control work. These inspections determine compliance and also provide protection for the consumer who utilizes structural pest control services. This type of enforcement adds to the precision with which structural pests control operators must operate and bodes nothing but good for the conscientious operator.

A cooperative agreement which this state has with two Federal agencies, the Veterans Administration and the Federal Housing Administration, provides that North Carolina state licensed

structural pest control operators complete Wood-Destroying Insect Reports on every existing dwelling and issue Termite Soil Treatment Guarantees on every newly constructed dwelling purchased through these agencies. The reports and guarantees are prerequisites for loan closures. North Carolina was among the first states to enter into such an agreement.

Information on the division's operations and activities for this biennium is presented in the following sections.

EXAMINATIONS

A state structural pest control license is required for each of the following phases of structural pest control: (1) control of wood-destroying organisms by any method other than fumigation, (2) control of household pests by any method other than fumigation, and (3) fumigation.

The law requires an applicant for a license to prevent satisfactory evidence concerning his qualifications for such license. One of the basic qualifications for a license is two years experience as an employee or owner-operator in the phase of structural pest control for which license is applied. Applicants for licenses must pass an oral or written examination, or both an oral and written examination before they can obtain licenses.

Information on examinations administered during this biennium is presented below:

	1968-69	1969-70
Number of persons who made application to take the examination	24	44
Number of applicants who took the examination	21	35
Number of applicants who were refused examination	1	2
Number of examinations given	64	97
Number of examinations failed	34	52
Number of examinations passed	30	45

One hundred and sixty-one examinations were given during this biennium and 147 examinations were given during the last biennium. Forty-seven percent of the examinations given this biennium were passed whereas only thirty-two percent of the examinations given during the preceding biennium were passed.

LICENSES

Structural pest control licenses are issued to the individual rather than the company. Each nonresident license holder is required by law to designate a resident agent and to maintain a complete set of records on the work he preforms in this state with his agent.

A summary of licenses issued during this biennium is presented below:

	1968-69	1969-70
Number of individuals licensed	244	251
Number of individuals to whom initial licenses were issued	16	29
Number of companies represented	186	194

During this biennium, 461 individuals were licensed to engage in the control of wood-destroying organisms; 453 individuals were licensed to engage in the control of household pests; and 78 individuals were licensed to engage in fumigation work. Four hundred and ninety-five licensed certificates were issued during this biennium. Thirty individuals failed to renew their licenses during the biennium.

REGISTRATION

All license holders are required under the law to register with this division the names of all their employees who are servicemen, salesmen, solicitors, and estimators. Each employee for whom registration is made is issued an operator's identification card. This card is to be carried on the person at all times when performing any phase of structural pest control work. The card holder is required to display his card upon demand to the person for whom any phase of structural pest control work is being performed.

One housand four hundred and forty-nine operator's identification cards were issued during this biennium.

INSPECTION

This division has five structural pest control inspectors. The state is subdivided into five areas with inspectors located in Hickory, Thomasville, Raleigh, Chinquapin, and Williamston.

Information on inspections during this biennium is presented below:

	1968-69	1969-70
Number of inspections of records and equipment	273	356
Number of samples of treated soil tested	1,221	891
Number of samples deficient in toxic chemical	168	120
Number of jobs from which samples were tested	1,071	800
Number of jobs deficient in toxic chemical	131	96
Number of licensees whose samples were deficient in toxic chemical	64	40
Number of jobs inspected	1,195	1,565

Major discrepancies in treatment requirements were found in fourteen percent of the jobs inspected during the 1968-69 fiscal year and fifteen percent of the jobs inspected during the 1969-70 fiscal year. Twelve percent of the soil samples tested during this biennium were found to be deficient in toxic chemical.

This division made a total of 5,385 inspections during this biennium.

STRUCTURAL PEST CONTROL COMMITTEE

The committee is authorized under the law to make such reasonable rules and regulations with regard to structural pest control as may be necessary to protect the interests, health, and safety of the public. In addition it is the duty of the committee to conduct hearings relating to the suspension and revocation of structural pest control licenses. Twelve structural pest control licenses have been revoked since the law was enacted.

Information on activities of the Committee during this biennium is presented below:

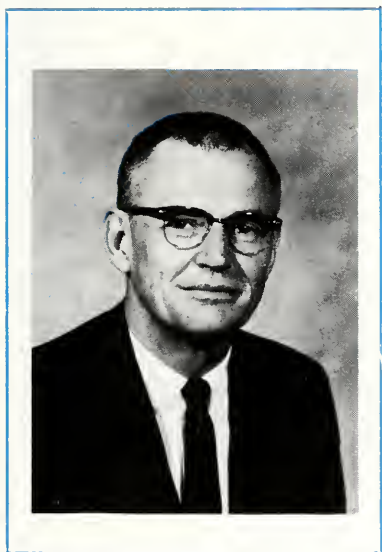
	1968-69	1969-70
Number of committee meetings	2	5
Number of public hearings	0	1
Number of licenses revoked or suspended	0	0
Number of licensees summoned for hearings ..	1	6
Number of re-inspection fees charged	304	341
Number of licensees charged re-inspection fees	122	106

During this biennium, twenty-six persons were tried in the courts for violations of the North Carolina Structural Pest Control Law. Nineteen of these were convicted of engaging in or supervising structural pest control work without first securing a valid North Carolina structural pest control license.

VETERINARY DIVISION

DR. T. F. ZWEIGART

State Veterinarian



The Veterinary Division serves the consumer as well as the producer of livestock and poultry in North Carolina. The division is responsible for reducing the losses caused by livestock and poultry diseases, and the inspection of meat and poultry products used for human consumption. Losses caused to farmers by animal diseases are only a part of the total. Eventually, they are shared by all in the reduction of supply, lower quality and higher prices paid for animal products. Many animal diseases are shared by humans, so any program to protect livestock

and poultry from infections diseases also protects human health.

The work of the division is both service and regulatory in nature and is accomplished through the administration of the laws and regulations applying, and operation of the animal disease diagnostic laboratories.

Animal diseases have no respect for political boundaries, so any economical programs to control or eradicate them necessarily must be cooperative ventures involving the federal government and other states. States which do not maintain adequate programs for control and eradication of livestock and poultry diseases not only contribute to direct economic losses by producers, but risk loss of their markets in other states and foreign countries.

COMPULSORY MEAT AND POULTRY INSPECTION SERVICE

The North Carolina Meat and Poultry Inspection Service was started under two laws which went into effect July 1, 1962. A new Compulsory Meat Inspection Law passed by the 1969 Gen-



Every carcass slaughtered in processing plants in North Carolina is inspected for wholesomeness by a state or federal inspector.

eral Assembly became effective January 1, 1970. In most respects it follows the Model Federal Law. Consumers, livestock and poultry producers, slaughterers, and processors have benefited from the inspection. There has been a general upgrading of all slaughtering and processing establishments through new construction, remodeling, repairing and replacement of obsolete equipment to meet the minimum requirements of the State and Federal laws and regulations.

The Federal Wholesome Meat Act became effective December 15, 1967. It requires that State Meat Inspection standards must be equal to those of federal inspection within two years of the date the law went into effect. North Carolina has received a one year extension, so our standards are not required to equal those of the federal government until December 15, 1970.

An agreement was signed with the federal officials June 1, 1968 and 255 slaughtering and processing establishments were placed under State-Federal Inspection as provided for by the Wholesome Meat Act. Approximately 60 additional plants are

expected to come under the law early in the next biennium. Fifty percent of the costs for inspection service under the Wholesome Meat Act is paid by the Federal Government.

The division has cooperated with the federal government under the Talmadge-Aiken Act since April 15, 1968. This involves performing federal meat inspection with state-employed inspectors. Meat from these plants may be shipped interstate on an equal basis with the products of federally inspected plants. Thirteen (13) plants were operating under the Act at the end of the biennium. Fifty percent of the inspection service costs for the plants operating under the Talmadge-Aiken Act also is paid by the Federal Government.

The total number of plants under inspection as of June 30, 1970 is as follows:

Wholesome Meat Plants	Talmadge-Aiken Plants	Poultry Plants	Rabbit Plants
324	13	16	2

The Meat Inspection Service cooperates with other state and federal agencies in order to assure the quality of meat and poultry products inspected in North Carolina.

Following is a statistical summary of meat and poultry inspection for the biennium:

<i>Slaughtered Under State Inspection</i>	1968-69	1969-70
Hogs	495,546	452,643
Cattle and Calves	107,705	94,808
Sheep and Goats	1,272	1,009
Rabbits	7,150	5,787
Chickens	11,710,898	12,927,675
Turkeys	18,733	23,577

Carcasses Condemned

Hogs	1,457	940
Cattle and Calves	210	149
Sheep and Goats	2	3
Rabbits	20	14
Chickens	359,082	310,233
Turkeys	210	286

Livers Condemned

Hogs	207,568	188,070
Cattle and Calves	15,177	14,413
Sheep and Goats	102	124
Rabbits	656	352

Products Processed (pounds)

Sausage	38,313,994	38,341,479
Wieners	20,474,532	19,008,894
Hamburger	19,060,381	17,280,516
Steaks, Chops, Roasts	14,048,102	13,080,056
Placed in cure, cooked, smoked		
hams, sides, barbecue & other	29,166,423	35,761,457
Cheese, Chili loaf & other	10,231,350	8,163,625
Sliced bacon, beef & other	5,121,656	5,710,557
Lard	4,042,780	3,556,410
Miscellaneous	5,459,741	5,455,490
Canned Product-Commercial	30,000	659,810
Poultry	6,025,453	6,772,074
Rabbits	18,664	24,224

HOG CHOLERA

Hog Cholera continues to be the number one swine disease in the state as measured by economic loss and producers' interest. Good progress was made in limiting outbreaks of hog cholera during fiscal year 1969. However, in common with other states, North Carolina experienced a serious increase in the number of outbreaks of the disease during the second year of the biennium. The increase is reflected by the rise in state indemnities paid to owners of swine destroyed because of hog cholera. The amount spent for the purpose during 1968-69 was \$66,769.56 as compared with \$327,737.65 for 1969-70. Fortunately, hog cholera is not transmissible to other species of animals or man.

While regrettable, the unexpected losses have resulted in a tightening up of the hog cholera eradication program nationally; and the spread of hog cholera from state to state is much less

likely to occur. Due to increased spread of the infection, certain steps have been taken to reduce the risk. On July 18, 1969 Commissioner James A. Graham acting under authority of G. S. 106-316.1, and on the advice of the North Carolina Hog Cholera Advisory Committee, issued regulations prohibiting the movement of swine except under certain conditions. The main provision required on-the-farm inspection before the movement of any swine, except those going to immediate slaughter. This has been very effective in preventing the transmission of hog cholera by the legal movement of swine. Most of the inspection work has been done by teachers of vocational agriculture and by extension personnel.

Beginning November 24, 1969, the U. S. Department of Agriculture and the North Carolina Department of Agriculture have placed quarantines on sizeable areas adjacent to hog cholera outbreaks. In most cases, this has been effective in preventing the spread of infection from the original areas.

The movement of modified live virus hog cholera vaccines across state lines has been prohibited by federal regulation since July 1, 1969. It had been found that the vaccines, while useful in some instances, were causing outbreaks of hog cholera. Their continued use was not consistent with a program to eradicate hog cholera.

Many outbreaks of hog cholera in North Carolina have started with the feeding of raw or improperly cooked garbage. Rigid enforcement of the existing garbage feeding law is practiced, but it has not been possible to secure an acceptable level of compliance. As of June 30, 1970, the legislatures of seven states had passed acts to outlaw the feeding of garbage to swine.

The eradication of hog cholera by 1972 is a national goal. At the end of the biennium, fifteen states were hog cholera-free and 32 others including North Carolina were in the final phases of the eradication program. Obviously, one state will not be safe from reinfection until all are hog cholera-free. The program has been expensive, but the benefits to be derived are such that the cost will be small by long-range comparison.

BRUCELLOSIS

Brucellosis is an infectious disease which affects most species of farm animals and is transmitted to humans as undulant fever.

Sufficient knowledge is available to allow us to eradicate

brucellosis. As of June 30, 1970 all of the counties in 20 states, and 88 counties in North Carolina were classified as Brucellosis-free. Much of this progress toward the eventual eradication of Brucellosis can be attributed to improved methods of detecting infected herds. Identification of slaughter cattle with numbered back-tags at the first point of concentration after they leave the farm makes it possible to collect blood samples for testing at the time of slaughter. This allows detection of many infected herds without the expense of testing large numbers of non-infected herds. The cooperation of livestock market and packing plant operators has made this method practical.

The use of the brucellosis ring test on milk samples has reduced greatly the need for blood testing individual animals in dairy herds. Composite milk samples are tested from each dairy herd every three months. Only herds which are suspicious on the ring test need to be blood tested.

Summary of Brucellosis Blood Tests

	1968-69	1969-70
Number of herds tested	4,614	3,200
Number of cattle tested	146,758	102,061
Number of infected herds	52	32
Number of infected cattle	90	51

Summary of Brucellosis Ring Tests (Milk)

Number of herd tests	17,544	15,466
Estimated number of cattle tested	576,480	518,890
Negative herd tests	17,457	15,397
Suspect herds	87	69

Thirty-seven herds of breeding swine were classified as Validated Brucellosis-free on June 30, 1970. A buyer now has a fair degree of choice when purchasing breeding stock within the state. Economic necessity should cause more breeders to have their herds validated.

TUBERCULOSIS

The incidence of tuberculosis in our cattle population remains low. During the biennium 291,899 cattle in 5,562 herds were tested and 22 reactors, involving 18 herds, were found. The use of backtags on cattle consigned to slaughter allows animals showing evidence of tuberculosis at slaughter to be traced to the herds of origin. The State and Federal Meat Inspection Services cooperate with animal disease control officials by report-

ing diseased animals found at the time of post-mortem inspection.

Tuberculosis is present in the chicken and swine populations of the state, although the extent of the problem has not been determined. Starting a program to eradicate the disease from swine will be practical when a method of tracing individual hogs from slaughter back to individual herds has been developed and put into effect.

On June, 1, 1970 the North Carolina Board of Agriculture modified the regulation requiring the testing of dairy cattle. Effective September 1, 1970 a tuberculin test will be required ever third year instead of annually. All cattle removed from dairy herds for slaughter will be required to be backtagged or otherwise identified in a manner approved by the Commissioner of Agriculture so that they can be traced readily from a slaughter plant to the farm of origin. The ability to determine the source of diseased animals found at slaughter will make it safe to do away with the annual test requirement. The eradication of tuberculosis will progress at a slower rate than that of many other diseases because of the insidious nature of its presence.

ANAPLASMOSIS

Anaplasmosis is an infectious disease of cattle transmitted by ticks, biting flies and other insects, as well as the use of contaminated needles, dehorners, etc. It causes large losses in the Coastal Plains area. Fortunately, a reliable blood test for the disease is available. It is possible to rid a herd of anaplasmosis by blood testing all animals, and isolating and treating those which are shown by the test to be infected carriers of the disease.

A limited voluntary anaplasmosis control program is now in operation. Participation is expected to increase as owners find out that the disease can be avoided. Current and pending restrictions on the movement of cattle into other states and Canada also will make ownership of anaplasmosis-free herds more desirable.

OTHER DISEASES

Foot and mouth disease has not occurred in the United States since 1929, but the recent experience of other countries shows that we can not relax our vigilance. Vesicular stomatitis which is readily confused with foot and mouth disease does occur in

North Carolina. While vesicular stomatitis is not a great threat to our livestock industry, every reported outbreak must be investigated because of the similarity.

Virus pneumonia and atrophic rhinitis of swine cause sizeable losses to swine producers of the state although they kill relatively few animals. Unfortunately, it is not possible to detect the diseases with a high degree of certainty in living animals. For this reason, it is difficult, though possible, to develop and maintain noninfected herds. It is especially important that owners selling breeding stock have disease-free herds. Personnel of the Veterinary Division are working with interested owners to accomplish this objective.

Infectious bovine rhinotracheitis (Red nose), virus diarrhea and a respiratory disease caused by a parainfluenza virus have caused sizeable losses to dairy and beef cattle owners of the state. Diagnosis of these diseases is difficult without laboratory help. The division's diagnostic laboratories fill this need. Fortunately, effective vaccines are available to prevent these diseases.

POULTRY TESTING

Poultry Specialists of the division are responsible for licensing hatcheries and baby chick dealers, and regulating their operations. They, or authorized agents working under their supervision, conduct pullorum-typhoid tests on hatchery flocks as required by law. The plate agglutination test is used on most flocks and is done in the poultry house. The tube agglutination test (which is performed at one of the division's diagnostic laboratories) is used on Flocks shipping eggs to certain states, and on all turkey flocks. No reactors to the test for pullorum-typhoid disease were found during the biennium. Based on this progress toward eradication of the disease, the test requirements have been modified, except for primary breeders, to call for the testing of 15% of the birds in a flock, with a minimum number of 300, instead of the entire flock. This releases field and laboratory personnel for work with other disease problems.

The mycoplasmosis (PPLO) control program initiated in 1967 has continued to expand. Much progress has been made in removing the infection from chicken and turkey flocks. Present indications are that an eradication program for diseases of poultry caused by mycoplasma will be feasible.



Laboratory technicians will test one million poultry blood samples each year.

DIAGNOSTIC LABORATORY SERVICE

Nine animal disease diagnostic laboratories are operated by personnel of the division. The central laboratory is located on Western Boulevard in Raleigh. Small branch laboratories are located at Edenton, Monroe, Murphy, North Wilkesboro, Robbins, Rose Hill, Shelby and Waynesville. The branch laboratory at Edenton is equipped and staffed to diagnose diseases of livestock and poultry. Work at the other branch laboratories is limited essentially to the diagnosis of poultry diseases.

The central laboratory is staffed and equipped for the diagnosis of diseases of livestock, poultry and other animals. In addition, specimens are sent to the central laboratory from the branch laboratories whenever other than simple tests or procedures are required. These include histological examination, fluorescence microscopy, virus isolation and serum neutralization tests. When information about flocks or herds is needed to supplement laboratory findings, visits to farms are made by laboratory veterinarians.

The 1969 General Assembly approved funds for a new central laboratory building. It will be located on Blue Ridge Road near



This N.C.D.A. veterinarian will examine these chickens to determine the disease which is causing flock problems.

the North Carolina State Fair Grounds and should be in operation before the end of 1971. The larger building will relieve the crowding of personnel and equipment which now impedes our work. In addition, it will be possible to add facilities to improve our service to the public.

Funds for building a new animal disease diagnostic laboratory in Western North Carolina were approved by the 1969 Legislature with the stipulation that the sum of \$25,000 in non-state funds be raised to supplement the appropriation. The non-state funds had not been raised at the close of the biennium. It is hoped that the \$25,000 can be secured. A well-equipped and staffed laboratory is needed in Western North Carolina. Present plans call for building it near the Asheville Airport.

LIVESTOCK MARKET INSPECTION

Livestock markets are beneficial to the livestock industry of the state, but without proper attention, to disease control they can cause great losses by contributing to the spread of animal diseases.

Public livestock market inspection constitutes an important part of the work of the Veterinary Division in reducing losses to the livestock industry because of disease. Inspectors from the

division have the responsibility for seeing that the state's livestock markets are operated in accordance with the laws applying. Inspections are made to insure that minimum standards for sanitation are met, sick animals are not offered for sale, and that proper tests and vaccinations are given to animals. Vaccinating and testing at livestock markets is performed by practicing veterinarians employed by the livestock market operators. Finding veterinarians to do this work has been difficult in some areas.

Most livestock market operators recognize the importance of conducting their markets in such a manner as to minimize the chance of disease spread. With few exceptions, they have worked with employees of the division to minimize the possibility of disease spread through their markets. Their support of the back-tagging program has been especially helpful.

WAREHOUSE DIVISION

WILLIAM G. PARHAM, JR.

State Warehouse Superintendent

The North Carolina Warehouse Law authorizes the State Warehouse Superintendent as an agent of the State of North Carolina, to conduct a system of warehousing in North Carolina for the public storage of agricultural commodities.

A system of licensing, bonding and examination of public warehouses assures the farmers and others of a safe place to store agricultural commodities at reasonable rates and maintains the integrity of warehouse receipts issued for such commodities so that they will be acceptable generally as security for loans and for trading purposes.

A cooperative agreement has been in effect with the U. S. Department of Agriculture since the early 1920's. Under this agreement, North Carolina state licensed warehouses in turn are licensed under the U. S. Warehouse Act. The state furnishes one examiner and office space for the federal supervisor. The examination program is supervised by federal personnel.

The warehouse receipt is an important document in connection with the marketing of agricultural commodities. For example, the majority of the spot cotton deliveries in satisfaction of sales made between the time a bale of cotton leaves the gin yard and arrives at the mill warehouse, are made on the basis of warehouse receipts.

The commodity merchant and the producer finance on the basis of such receipts. A large portion of the government price support loans are made on the basis of warehouse receipts and much of the delivery mechanism of the futures markets depends on warehouse receipts for settlement of contracts.



Commodities stored in licensed warehouses are insured against loss by fire or lightning. All grain in storage is also insured against loss by windstorm. The law places on the State Warehouse Superintendent the responsibility for seeing that adequate insurance is provided and he is also responsible for the collection and payment of all claims.

There is a growing need for acceptable warehouse receipts for financing purposes as more and more agricultural commodities enter trade channels directly without first entering price support programs. Also, licensed warehouses with CCC agreements must be available to producers if price support programs are to serve their proper function.

Adequate financial backing is essential to the development of a warehouse system. To establish this financial backing a ginner's tax of 25 cents a bale was placed on cotton for a three year period during the early 20's. The proceeds from this tax was placed in a guarantee fund.

The guarantee fund under the law can be used for securing first mortgages on warehouse construction. The purpose of this measure is to aid and encourage the establishment of warehouses operating under the system. The law requires that ten percent of the fund to be invested in bonds thus permitting the remaining ninety percent to be used for warehouse construction. The law also specifies that such first mortgages shall be for not more than one-half of the actual value of the property covered by the mortgages and that they be amortized for not more than ten years.

The State Warehouse Superintendent makes a careful investigation before a loan is made to determine whether in his opinion there is a need for the warehouse and if the loan is secure. His findings are presented and must be approved by the State Board of Agriculture, the Governor and the Attorney General. During the biennium there was one loan totaling \$175,000.00 made from the State Warehouse System fund.

The State Warehouse System operates on the interest derived from these loans and bonds, while the principal fund acts as a guarantee back of the receipts issued by state licensed warehouses.

The system was first limited to cotton; however, the benefits derived from the system were so great that the Warehouse Law was amended in 1941 to include other agricultural commodities with the exception of tobacco. The legislature however did not increase the amount of the guarantee fund.

Warehouses licensed under the State Warehouse System provide safe storage for farm commodities, and the receipts issued by these warehouses are accepted by all banks as the best collateral. Producers may therefore store their commodities and borrow money on them instead of having to sell them when the prices are depressed by harvest season gluts on the market. Storing farm commodities in licensed warehouses not only provides safe storage but also promotes more orderly marketing.

JUNE 30, 1968

<i>Cash on hand principal fund</i>	<i>Cash on hand supervision fund</i>	<i>First Mortgage Loans</i>	<i>Invested in Government Bonds & Treasury Bills</i>
\$2,664.64	\$33,113.04	\$388,622.41	\$248,000.00

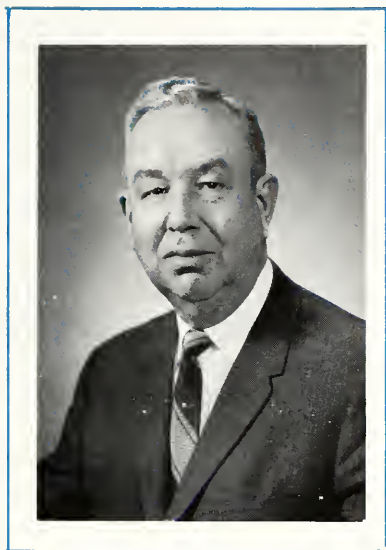
JUNE 30, 1970

\$1,436.94	\$10,728.22	\$449,696.70	\$247,500.00
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DIVISION OF WEIGHTS AND MEASURES

JOHN I. MOORE

Superintendent



Special emphasis has been placed on consumer protection by Congress and various state legislatures during the past few years. The North Carolina Department of Agriculture, Weights and Measures Division, since the enactment of its present Law which was passed by the 1927 Legislature has functioned solely as a consumer protection agency of government.

The 89th Congress adopted and passed the Fair Packaging and Labeling Act. This has resulted in the Division having to review its working structure particularly in respect to our

inspection of packages. Our new procedure and the requirements of the Fair Packaging and Labeling Act has resulted in the consumer being further protected.

Features of the Fair Packaging and Labeling Act did not have the impact in North Carolina that it had in many other states because of our present Weights and Measures Law already having had most of its requirements in effect. Its passage has resulted, however, in uniformity of labeling as it relates to the location of the net content statement which requires that the net content statement on any package up to four pounds be labeled in both pounds and ounces and ounces. As an example, a package weighing "1 lb. 4 oz." must also show "20 oz.". Commodities sold by liquid measure one gallon or less must also have a double indication such as " $1\frac{1}{2}$ gallon" and "32 fluid ounces". Another requirement was that efforts be made to cut down on the proliferation of sizes of packages being sold. This has been successful as a recent survey reveals that the number of sizes of packages of the following items have been reduced as shown: toothpaste — 91 per cent; dry detergent — 75 per cent; adhesive bandages — 73 per cent. Many other items also have been reduced in the number of sizes offered for sale.

We have managed to give our usual services to our many activities which include the inspection of all types of weighing and measuring devices. These include large capacity scales used for the weighing of all types of commodities including items such as peanuts, corn, cotton, grain, scrap metal, coal, etc. There has been an ever increasing number of large capacity truck scales installed due to the influx of industry and the transition of changes in handling many farm commodities from bagging to bulk handling. A continued increase in the use of liquid fertilizer has been noted and our inspection for safety and handling and storing as well as for quantity has been increased. The increase of livestock production in the state results in more inspections of livestock scales at the ever increasing livestock markets.

We are continually reviewing our inspection procedures in an effort to improve our consumer protection responsibilities to the people of our state. There is no transaction of any type of business in this state or any commodity, thing, or article that does not come under the Weights and Measures Law and Rules and Regulations as they all must be weighed or measured in some manner during the transaction.

During the past biennium we have received from the National Bureau of Standards by an act of Congress new sets of standards. These new standards are located in our Laboratory in a special area known as our "Weights and Measures Laboratory." These new standards permit us a greater latitude of work in that we can offer services previously available only through the National Bureau of Standards to industry in this state. They consist of a complete range of weights from 1,000 pounds down to 1/1,000 ounce, liquid measures of all sizes and balances capable of weighing from grains to 1,000 pounds.

GASOLINE AND OIL INSPECTION DIVISION

JOHN I. MOORE

Director

The Gasoline and Oil Inspection Division of the North Carolina Department of Agriculture has continued its work as another division whose activities relate almost solely to "consumer protection". The main functions of this division is to see that anyone purchasing petroleum products in this state gets a superior quality of petroleum products and in addition get the quantity of product as represented to him when he makes a purchase. In



The Gas and Oil inspection service of the North Carolina Department of Agriculture placed these twelve new air-conditioned test units into service in 1970.

order to accomplish this purpose each and every gasoline pump and each meter on fuel oil and gasoline delivery trucks is calibrated and tested twice each year. These devices are then sealed so that any effort to tamper with same can be determined when a reinspection is made. In addition, regular sampling procedures by twelve portable laboratories are made throughout the state at both major and independent service stations to see that the product being sold or offered for sale meets the minimum specifications as adopted and required to be sold in this state. We have just replaced our twelve portable laboratories with new equipment and find that this method of operation has been a most successful deterrent in violations of the Gasoline and Oil Inspection Laws. North Carolina is one of eleven states offering protection to its consumers in the quality of petroleum products being sold.

Recent studies as they relate to pollution, which is allegedly called pollution of the air and is caused by the emission of certain gases in automobiles, has resulted in new studies in this area. These studies will no doubt result in additional quality specifications having to be made in the near future; and the Gasoline and Oil Inspection Board is making a review of these matters and will no doubt make recommendations in the near future regarding same. It is claimed that the use of "lead" in gasoline for the purpose of increasing the octane and eliminating the knock in automobiles is one of the greatest causes of pollution

in automobile exhaust of gases. In order to eliminate "lead" entirely, it will be necessary to redesign the present-day automobile engine in order to be able to use an "unleaded" gasoline.

Kerosene, motor oils, and heating fuels are continually being sampled and tested for their quality and quantity to assure the buying public of an excellent product. Our work is accomplished by having a central laboratory in Raleigh which runs complete analyses on all types of petroleum products, with twenty-four inspectors whose duties consist of inspection of measuring devices at service stations throughout the state, and five calibrators whose duties require them to inspect all types of kerosene and heating fuel oil trucks located throughout the state for correctness of delivery, and twelve portable laboratories who check service station outlets for quality of the product being sold. We maintain two calibration stations; one in Raleigh and one in Wilmington for the purpose of calibrating large capacity petroleum delivery trucks. Four inspectors are assigned to the inspection for safety, quality, and quantity of liquefied petroleum gases. There has been a continual increase in the use and sale of this product over the past ten years, and it continues to grow.



Checking out this new gas and oil mobile unit are, left to right, Gene Padgett, Calibrator; Marion Linlaw, assistant director; and John Moore, director of the Gas and Oil Division.







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